



# NPS IN THE NEWS

## Weekly Media Report – June 1-7, 2021

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### **FY-22 BUDGET:**

1. [\*\*U.S. Navy Plans to Cut Part of Higher Ed Funding, Requests Increase to Sexual Assault Prevention and Mental Health\*\*](#)

*(Diverse Education 2 June 21) ... Sarah Wood*

Within their proposed fiscal 2022 budget submitted to Congress last week, the United States Navy laid out funding plans for education and mental health support... Institutions impacted include the **Naval Postgraduate School**, the United States Naval Academy and Naval War College.

### **V-SGL:**

2. [\*\*Future Force: Naval Research Chief Discusses Disruptive Technologies During Latest V-SGL\*\*](#)

*(Navy.mil 2 June 21) ... Mass Communication Specialist 3rd Class James Norket*

*(NPS.edu 2 June 21) ... Mass Communication Specialist 3rd Class James Norket*

Chief of Naval Research Rear Adm. Lorin C. Selby spoke virtually to Naval Postgraduate School (NPS) students, faculty and staff about “Re-Imagining the Future Force,” and how the United States military is changing and forging ahead in the modern era of Great Power Competition during the latest Secretary of the Navy Guest Lecture (SGL), May 25.

### **RESEARCH:**

3. [\*\*New research reveals ocean noise from shipping traffic reduced during COVID-19 pandemic\*\*](#)

*(PhysOrg 3 June 21) ... Raul Nava*

Shipping traffic generates low-frequency sound that permeates the underwater soundscape. An underwater microphone (hydrophone) on MBARI's MARS cabled observatory recorded a decrease in shipping noise in 2020 during the COVID-19 pandemic. Credit: Jess Morten, 2016 NOAA Channel Islands National Marine Sanctuary... SanctSound partners involved in this study are from NOAA, the **Naval Postgraduate School**, Southall Environmental Associates, Scripps Institution of Oceanography, and Moss Landing Marine Laboratories.

4. [\*\*Global Underwater Autonomous Vehicle \(AUV\) Market to Touch US\\$ 183.4 million by 2026; Growing at 20.4% CAGR during 2021-2026\*\*](#)

*(Exchange 99 6 June 21) ... Akb Q*

The global Underwater Autonomous Vehicle (AUV) market was valued at US\$ 50 million in 2019 and it is expected to reach US\$ 183.4 million by the end of 2026, growing at a CAGR of 20.4% during 2021-2026... In autonomous underwater robot technology research, the United States, Canada, the United Kingdom, France, Germany, Italy, Russia, Japan and other countries in the leading position. Among them, the most famous research institutes are Sea Grant's AUV Laboratory of Massachusetts institute of technology (MIT), intelligent Underwater



vehicle research center of **Naval Postgraduate School** (us), and Underwater Robotics Application Laboratory (URA) of university of Tokyo (Japan).

## **FACULTY:**

### **5. [Anti-Gravity, Time Travel, and Teleportation: Dr. Hamming Gives Advice](#)**

*(HackDay 1 June 21) ... Al Williams*

You may not know the name [Richard Hamming], but you definitely use some of his work. While working for Bell Labs, he developed Hamming codes — the parent of a class of codes that detect, and sometimes correct, errors in everything from error-correcting memory to hard drives. He also worked on the Manhattan Project and was a lecturer at the **Naval Postgraduate School**.

### **6. [Iranian Warship Thought to be Headed to Venezuela Left Port with 7 High-Speed Missile Boats Aboard](#)**

*(USNI News.com 1 June 21) ... H I Sutton and Sam LaGrone*

An Iranian Navy ship thought to be bound for Venezuela left its port in late April with seven high-speed missile-attack craft strapped to its deck, USNI News has learned...“The IRGC began working with the Venezuelan military in the early 2000s, and the two sides have continued to have a murky security relationship ever since. That relationship grew stronger in response to the external pressure aimed at toppling Maduro. With few friends, Maduro has leaned into his relationship with Iran and the IRGC is seeking to capitalize on the situation. Iran has managed to develop a number of military weapons and systems that could be useful for smaller states. It’s unsurprising that Venezuela might seek to procure some.” Iran expert Afshon Ostovar, a professor in the Department of National Security Affairs at the **Naval Postgraduate School** and author of *Vanguard of the Imam: Religion, Politics, and Iran’s Revolutionary Guards*, told USNI News on Tuesday.

### **7. [AST Editorial Director Joins PWPORG Preparedness Advisory Board](#)**

*(AmericanSecurityToday 3 June 21) ... Tammy Waitt*

PWPORG.ORG (Preparedness Without Paranoia) is a 501(c)(3) built by law enforcement and security industry practitioners and educators to provide educational resources to kids, families and communities on safety and emergency preparedness... Heather Issvaron, the Director, Strategic Communications, Center for Homeland Defense and Security at the **Naval Postgraduate School**.

### **8. [Excellence in Homeland Security](#)**

*(AmericanSecurityToday 3 June 21)*

Dr. Kathleen Kiernan is the Founder and CEO of national security, education, risk management and compliance firm Kiernan Group Holdings, Chair Emeritus of InfraGard National Members Alliance, and adjunct faculty member at Johns Hopkins University and **Naval Postgraduate School**.

### **9. [The State Stays Dark: Mafia Politics Return To Turkey](#)**

*(WaronTheRocks 7 June 21) ... Ryan Gingeras*

There was a moment a decade ago when it appeared that the mafia’s influence over Turkish politics had ended. Since the 1970s, individuals from Turkey’s underworld had been the focus of a series of scandals that rocked the country’s political establishment. But by 2009 a number of renowned godfathers were either on trial or already serving long prison terms. Then-Prime Minister Recep Tayyip Erdoğan declared that his government’s “clean hands” policies would pull the country out of the dark pits of corruption in which it had been mired. Amid this optimism, some remained cautious. “These [criminal] structures are currently asleep,” one retired police official declared in 2011. “However, they can become active again if they find a suitable political environment.”... Ryan Gingeras is a professor in the Department of National Security Affairs at the Naval Postgraduate School and is an expert on Turkish, Balkan, and Middle East history.

### **10. [Physiological and Cognitive Performance in F-22 Pilots During Day and Night Flying](#)**

*(Ingenta Connect May 21) ... Jennifer A. Heissel Naval Postgraduate School Assistant Professor*

Many workers routinely transition between day and night shifts including pilots, where night flights are commonly considered more stressful. The physiological toll from this transition is not fully understood, though



fatigue is a factor in many aviation accidents. This research investigated the changes in physiological markers of stress and cognitive performance as F-22 pilots transitioned from day flying to night flying.

## **11. Testing, Stress, and Performance: How Students Respond Physiologically to High-Stakes Testing**

*(MIT Press Direct April 21)* ... Jennifer A. Heissel **Naval Postgraduate School** Assistant Professor, Emma K. Adam, Jennifer L. Doleac, David N. Figlio

We examine how students' physiological stress differs between a regular school week and a high-stakes testing week, and we raise questions about how to interpret high-stakes test scores. A potential contributor to socioeconomic disparities in academic performance is the difference in the level of stress experienced by students outside of school. Chronic stress—due to neighborhood violence, poverty, or family instability—can affect how individuals' bodies respond to stressors in general, including the stress of standardized testing. This, in turn, can affect whether performance on standardized tests is a valid measure of students' actual ability. We collect data on students' stress responses using cortisol samples provided by low-income students in New Orleans. We measure how their cortisol patterns change during high-stakes testing weeks relative to baseline weeks. We find that high-stakes testing is related to cortisol responses, and those responses are related to test performance. Those who responded most strongly, with either increases or decreases in cortisol, scored 0.40 standard deviations lower than expected on the high-stakes exam.

## **ALUMNI:**

### **12. Contracting battalion welcomes new leader**

*(CSMNG.com 1 June 21)* ... Scott Prater

Lt. Col. Amy A. Saal assumed command of the 918th Contracting Battalion during a ceremony at Manhart Field May 21, 2021... Saal arrives at Fort Carson after serving at Army Contracting Command — Redstone. She is a graduate of the United States Military Academy at West Point, where she was a four-year letter winner and captain of the Army's Women's Basketball Team. She holds a Master of Business Administration degree from the **Naval Postgraduate School**, has served in a variety of career fields including acquisition, logistics and distribution and performed a variety of roles including a leadership position at Army Materiel Command.

### **13. Dampier Named Dean of College of Engineering and Computer Sciences**

*(Huntington News 3 June 21)*

*(Herald-Dispatch 6 June 21)*

After serving in the position for the past year, David A. Dampier has been appointed as dean of Marshall University's College of Engineering and Computer Sciences at Marshall University, effective July 3... Before higher education, he spent 20 years as an Army automation officer. He has a Ph.D. in computer science from the **Naval Postgraduate School**. His research interests include cyber security, digital forensics and applications of software engineering.

### **14. Fire Chief Whitney begins at Superstition Fire & Medical District**

*(yourValley.net 4 June 21)*

June 1 was Fire Chief John Whitney's official first day at Superstition Fire & Medical District... Chief Whitney was awarded a scholarship from the International Association of Fire Fighters and attended the Harvard University Trade Union Program in Cambridge. He also completed the certified public manager program at Arizona State University. He recently completed the Center for Homeland Defense and Security master's program at the **Naval Postgraduate School**.

### **15. Naperville resident named top Aurora University teacher**

*(Daily Herald 5 June 21)*

David Dial of Naperville, Aurora University associate professor and chair of criminal justice, was recently recognized as AU's 2020 Marcus and Mark H. Trumbo award winner for excellence in teaching. Nominated by students and fellow faculty members, the award is the university's most prestigious faculty recognition... Dial earned bachelor's and master's degrees from San Jose State College and the University of Colorado, respectively, and attended the FBI national academy. In 2006, he earned a second master's degree with a major in Homeland Security and Defense, from the United States **Naval Postgraduate School**. After graduating from college, he took a



two-year military leave of absence from the Milpitas, Calif., police department and served for a year as a military intelligence officer in Vietnam, earning three bronze stars for meritorious service.

## **16. Calvo assumes command of DLA Distribution Puget Sound**

*(The Guam Daily Post 7 June 21)*

The reins of command at Defense Logistics Agency Distribution Puget Sound, Washington, were handed to Navy Cmdr. Timothy J. Calvo in a ceremony held May 27... Calvo is from Yigo. He graduated from Father Duenas Memorial School and from the University of Portland in 2001 with a bachelor's degree in life science. He received his commission via Officer Candidate School in 2002. Calvo holds a Master of Business Administration in financial management from the **Naval Postgraduate School**.

## **UPCOMING NEWS & EVENTS:**

**June 7-11, 2021:** [Navy Senior Leader Seminar \(NSLS\)](#)

**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)



## FY-22 BUDGET:

### U.S. Navy Plans to Cut Part of Higher Ed Funding, Requests Increase to Sexual Assault Prevention and Mental Health

*(Diverse Education 2 June 21) ... Sarah Wood*

Within their proposed fiscal 2022 budget submitted to Congress last week, the United States Navy laid out funding plans for education and mental health support.

Due to criticism around the Navy's Education for Seapower strategy—an effort to increase education across the Marine Corps and Navy—the request for postsecondary program funding decreased from \$615 million in FY21 to \$498 million. The Tuition Assistance (TA) program, which covers 100% of tuition and fees up to \$250 per semester hour, was reduced by \$6 million.

“TA was reduced as Navy leadership seeks to address the balance between future force structure, current readiness requirements and war-fighter development,” Navy officials said.

Institutions impacted include the **Naval Postgraduate School**, the United States Naval Academy and Naval War College.

However, not all higher education programs will encounter budget cuts. The Navy requested a \$4 million increase in funding for the Naval Community College, which launched its pilot program in January to over 500 students. During FY22, the number is expected to reach 5,000 students from the Marine Corps, Coast Guard and Navy.

Funding for the Reserve Officers Training Corps is expected to also grow from \$164 million to \$167 million in FY22, the budget reported.

To “create a culture of excellence,” the Navy proposed a 56% increase in funding for sexual assault prevention and response training. In 2019, there were 7,825 reports of sexual assaults consisting of service members as victims or subjects, according to a United States Department of Defense study.

The \$131 million in proposed funding would be directed towards Sexual Assault Prevention and Response officers, victims' legal counsel and headquarters' staff. Beyond training and education sessions, a 24/7 response network will be established to hold individuals accountable and provide support to victims.

“We are emphasizing organizational trust and transparency as well as inclusion and connectedness among every service member, family member and civilian,” according to Navy officials. “The Department of the Navy is actively establishing an environment in which Sailors and Marines do not tolerate, condone or ignore sexual assault or other inappropriate behaviors.”

Additionally, there is an increased focus on mental health funding. Doubling its FY21 request to \$44 million, funding would be used to improve health care access by adding more mental health staff within the Department of the Navy, modernizing information technology, establishing virtual mental health initiatives and expanding counselor training for drugs and alcohol, according to the budget.

“The department remains committed to our most valuable asset, its people,” said Rear Admiral John Gumbleton, deputy assistant secretary of the Navy. “Our request increases focus on eradicating sexual assault and harassment and emphasizes the mental and physical readiness of our fighting force and their families.”

[U.S. Navy Plans to Cut Part of Higher Ed Funding, Requests Increase to Sexual Assault Prevention and Mental Health - Higher Education \(diveerseeducation.com\)](https://www.diveerseeducation.com)

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## V-SGL:

### **Future Force: Naval Research Chief Discusses Disruptive Technologies During Latest V-SGL**

*(Navy.mil 2 June 21) ... Mass Communication Specialist 3rd Class James Norket*

*(NPS.edu 2 June 21) ... Mass Communication Specialist 3rd Class James Norket*

Chief of Naval Research Rear Adm. Lorin C. Selby spoke virtually to Naval Postgraduate School (NPS) students, faculty and staff about “Re-Imagining the Future Force,” and how the United States military is changing and forging ahead in the modern era of Great Power Competition during the latest Secretary of the Navy Guest Lecture (SGL), May 25.

Selby also serves as the commander of the Naval Research Enterprise, which includes the Office of Naval Research (ONR), Naval Research Laboratory, ONR-Global and PMR-51.

He spoke about many of the large transitions throughout history resulting from innovations. From early humans learning how to preserve food and domesticate farm animals, to the invention of steam engines and eventually wireless communication. He believes that we are on the verge of the next big revolution in technology.

“We are at a pivotal moment in history,” said Selby. “We are in the middle of a new transition in technology, and I think we have to adapt rapidly in order to be successful in the new world that we are entering.”

Selby noted that one of the biggest obstacles the Department of Defense faces is in the acquisition field, saying that things are being invented faster than we can get them to the warfighter.

“I’ve been on a journey for several years trying to figure out how we can keep up with this technology that is racing ahead at its current pace,” said Selby. “This is no longer about changing the acquisition process, it is about restructuring and streamlining the [whole] process.”

Selby spoke about past innovations that were, in his own words, “disruptive technologies,” such as smart phones and nuclear-powered ships, that have forever changed the way people live and militaries operate.

“What’s the next disruptive technology that we can give to the warfighter that will increase their effectiveness?,” asked Selby. “That’s what we are looking for at the Office of Naval Research. We want to put these state-of-the-art things in the hands of the warfighter and ensure that we never have to fight fair with anyone.”

After his prepared remarks, Selby fielded questions from select NPS students, posing questions on everything from the future of directed energy to changes in training pipelines in order to stay current with the latest technologies.

U.S. Marine Corps Capt. Mike Gannon, a student in NPS’ manpower system analysis program, asked, “What is the number one research priority that we cannot afford to fall behind on in this era of Great Power Competition?”

Selby responded by saying, “I think it’s very dangerous to bet on even one new technology. We like to look at a vast array of information because you just never know which may come to fruition in the future. We find it’s better to have a wider, and maybe a little shallower depth to our investments rather than going really deep into one.”

U.S. Navy Lt. Cmdr. Brian Curran, a Ph.D student in applied physics, inquired about the role of directed energy and how it may change the way the Navy fights.

“I think in 20 years you’ll find directed energy on every combatant in the fleet, as well as on noncombatants and shore locations around the planet,” noted Selby. “While lasers are phenomenal, this is just one of the solutions we’ll have, it’s one arrow in the quiver. The quiver of defensive and offensive assets will be very diverse, and the key will be prioritizing which arrow in your quiver will take on which threat.”



U.S. Air Force Maj. Sean Batson, a student in the Northeast Asia Foreign Area Officer program, asked, "How can the Naval Research Enterprise be able to integrate open mission standards to improve interoperability between the different branches of the armed forces?"

Selby answered by saying, "I think digital engineering needs to be foundational to everything we do. That way we could maintain configuration control and can ensure that the standards that are used at the interface is understood by those that need to understand and not everybody."

Selby closed with some useful thoughts about leadership and the future.

"Don't be shy," Selby advised the students. "We are in a technological race, and it is a race that will be decided in the next 10 years. All of you with bright minds out there who have ideas, I value your input. If you've got an idea, throw it on the table, because that idea may be the one that wins the day. If your idea is right, you could be a future disruptor."

For a deeper dive into future technologies, check out the U.S. Naval Institute's [interview with Selby](#), where he discusses quantum technology, lasers, research and STEM education.

[Future Force: Naval Research Chief Discusses Disruptive Technologies During Latest V-SGL > United States Navy > News-Stories](#)

[Future Force: Naval Research Chief Discusses Disruptive Technologies During Latest V-SGL - Naval Postgraduate School \(nps.edu\)](#)

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## RESEARCH:

### **New research reveals ocean noise from shipping traffic reduced during COVID-19 pandemic**

*(PhysOrg 3 June 21) ... Raul Nava*

Shipping traffic generates low-frequency sound that permeates the underwater soundscape. An underwater microphone (hydrophone) on MBARI's MARS cabled observatory recorded a decrease in shipping noise in 2020 during the COVID-19 pandemic. Credit: Jess Morten, 2016 NOAA Channel Islands National Marine Sanctuary.

The COVID-19 global pandemic upended life around the world and disrupted global economic activity. It enabled a rare opportunity to measure the relationship between shipping traffic and the underwater soundscape in the Monterey Bay National Marine Sanctuary.

A world of sound lies beneath the ocean's surface—the bellowing calls of gargantuan whales, the sharp clicks of dolphins hunting for squid, the deluge of rain on the ocean's surface, the rumble of an earthquake. While most of these sounds come from natural sources, like animals or geological processes, noise from human activities is present too. The deep growls from shipping traffic can permeate the ocean's **soundscape**. These thundering grumbles ebb and flow with pulses of vessel activity.

An underwater microphone (hydrophone) installed on MBARI's MARS cabled ocean observatory deep beneath Monterey Bay is constantly listening to the underwater soundscape, streaming sounds to shore year-round. Taking a closer listen to audio logged by MBARI's hydrophone in 2020 revealed a drop in low-frequency sound in the spring and summer—a change researchers attribute to a decline in shipping traffic during the COVID-19 pandemic.

"The sound of global trade is in the ocean, and that sound is noise. Ocean noise levels responded very quickly to economic impacts of the pandemic," said John Ryan, a biological oceanographer at MBARI and lead author of the study published in *Frontiers in Marine Science* this week.

MBARI's hydrophone was uniquely suited to rapidly assess the impact of the COVID-19 pandemic on the ocean soundscape. "The cable connection is a great benefit because the data are available immediately," explained Ryan. "We can see the change happening when it's happening."



"We detected the changes by recording sound continuously through the cabled observatory and analyzing those recordings over not just 2020, but previous years too, so we could quantify how much quieter it was in 2020," explained Ryan.

The MARS cabled observatory sits approximately 20 kilometers (12.5 miles) from offshore shipping lanes, providing researchers the opportunity to "eavesdrop" on vessels as they pass through the Monterey Bay National Marine Sanctuary to ports to the north (San Francisco Bay) and south (Southern California).

Most marine acoustic recording systems can only be deployed for a relatively short period of time before battery and data storage capacity become depleted. MBARI's cabled observatory provides a constant connection to shore, removing the limitations on power and data to allow continuous listening to the ocean environment. MBARI installed a broadband hydrophone on the MARS observatory in 2015 and has collected a trove of acoustic data.

Examining data archived from the past three years proved critical for revealing how the marine soundscape off the central California coast changed during the COVID-19 pandemic.

"Between January and June, low-frequency noise levels decreased," observed Ryan. But was this a typical seasonal change or a phenomenon unique to 2020? The research team compared recordings for each month of 2020 to the same month in previous years. "If noise levels during 2020 were persistently lower than previous years, then we know 2020 was unusual."

Compared to 2018 and 2019, low-frequency noise was significantly reduced in 2020. "At its low point in June 2020, acoustic intensity was nearly halved," said Ryan. Noise levels began to rebound in July.

To determine if the drop in low-frequency noise evident in the hydrophone recordings was in fact caused by a reduction in ship traffic, researchers leveraged two independent data sets. Using data from U.S. Customs and Border Protection, personnel from the U.S. Maritime Administration (Department of Transportation) documented the total number of port calls for all ports along the California coast and the total gross tonnage that those ships were carrying. These data provided a statewide view of maritime shipping.

To understand changes within earshot of MBARI's hydrophone, the research team leveraged Automatic Identification System (AIS) data from the U.S. Coast Guard. These data provided a way of tracking the movement of vessels, including their speed and their location, to focus on the Central Coast region specifically.

The port and AIS data confirmed that the significantly reduced low-frequency noise during February through June 2020 occurred alongside unusually low port activity across California and reduced transits by large vessels in the Monterey Bay region. "2020 had the lowest levels of shipping activity and the lowest levels of noise among all three years," said Ryan, "and as it grew quieter during 2020, that was clearly related to less shipping activity."

This research underscores how pervasive noise pollution in the ocean is. Sound travels further underwater than in air, extending the reach of anthropogenic noise. "Our noise can harm marine animals that rely on sound to live," emphasized Ryan. "They use sound to communicate, navigate, find food, reproduce, and survive."

The MBARI team is part of the SanctSound research collaborative spearheaded by the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Navy to understand the soundscapes of national marine sanctuaries across the country. The four-year research project started in 2018 and brought together numerous scientific partners to study sound within seven national marine sanctuaries and one national monument in waters off the east and west coasts and Hawaii.

"The SanctSound project was designed to show how listening in special ocean places all around the U.S. can help us to better understand and protect them," explained Leila Hatch, marine ecologist with NOAA's Office of National Marine Sanctuaries and co-lead of the SanctSound initiative. "The results of this study in the Monterey Bay National Marine Sanctuary provide an example of how underwater sound can be used to monitor the local implications of global-scale changes in human behavior, allowing us to further consider the implications of such changes for the marine animals that call this place home."





SanctSound partners involved in this study are from NOAA, the **Naval Postgraduate School**, Southall Environmental Associates, Scripps Institution of Oceanography, and Moss Landing Marine Laboratories.

The recording location inside the Monterey Bay National Marine Sanctuary is far from major shipping lanes and from a major port, yet the sanctuary's soundscape responded rapidly to changes in offshore, large-vessel traffic, demonstrating how well sound carries and may impact sensitive marine wildlife, like whales. "We heard the changes in noise clearly even though we are not recording near a busy port or shipping lanes," said Ryan.

"Noise is an ephemeral pollutant," explained Ryan. "If we reduce the amount we put into the ocean, habitat quality improves immediately and there's an immediate benefit to animals that rely on [sound](#) for their lives."

Thanks to data processing by MBARI engineers, the hundreds of terabytes of acoustic data collected by MBARI's hydrophone are accessible to other research teams. MBARI also streams live audio from the MARS hydrophone to the Soundscape Listening Room. The listening room also includes archived sounds from marine mammals.

[New research reveals ocean noise from shipping traffic reduced during COVID-19 pandemic \(phys.org\)](#)

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## **Global Underwater Autonomous Vehicle (AUV) Market to Touch US\$ 183.4 million by 2026; Growing at 20.4% CAGR during 2021-2026**

*(Exchange 99 6 June 21) ... Akb Q*

The global Underwater Autonomous Vehicle (AUV) market was valued at US\$ 50 million in 2019 and it is expected to reach US\$ 183.4 million by the end of 2026, growing at a CAGR of 20.4% during 2021-2026.

Underwater autonomous underwater vehicle is a kind of underwater unmanned vehicle. As the function of underwater autonomous underwater vehicle is further strengthened, its corresponding application is also popularized from the original military field to the civilian field. According to the survey, the global market size of autonomous underwater vehicle (uuv) increased by 11% year-on-year in 2018. Production reached 149 units, up 4% year on year. The research on intelligent underwater robots, which is expected to reach the compound growth rate of China in the next five years, started late but developed rapidly. In recent years, some companies have launched small models and put them into use. For example Deepinfar and so on. More than 250 autonomous underwater vehicles are expected to enter service over the next five years. In autonomous underwater robot technology research, the United States, Canada, the United Kingdom, France, Germany, Italy, Russia, Japan and other countries in the leading position. Among them, the most famous research institutes are Sea Grant's AUV Laboratory of Massachusetts institute of technology (MIT), intelligent Underwater vehicle research center of **Naval Postgraduate School** (us), and Underwater Robotics Application Laboratory (URA) of university of Tokyo (Japan). In Harbin Engineering university, Shenyang Institute of Automation, Chinese Academy of Sciences and the study of intelligent underwater robot technology related research institutions since the mid – 1980 – s, design during the “number one” ocean underwater robot remote control type test model, and then developed the “discovery”, realized the automation in the field of 1000 m under the sea exploration, it is of great significance. In terms of intelligent decision-making and control, the “intelligent water” series of underwater robots designed by Harbin engineering university have overcome many technical difficulties, and the corresponding technical indexes are gradually approaching to the engineering application. For example, the “smart water 4” underwater robot can independently plan safe routes, draw target maps and identify underwater targets in the Marine environment. With the accelerating pace of human development of ocean. Underwater robot industry also gradually heat up, the form of a variety of purposes of underwater robot is active in the forefront of the Marine development, in addition



to the traditional military in the field of application of intelligent underwater robot can also be used for underwater areas, such as: Marine surveying and mapping, and underwater construction, material transportation and daily training, etc. The intelligent underwater robot can be used for range test, torpedo identification, etc. The robot can be disguised as a torpedo as a target for daily training and torpedo performance test, and the intelligent underwater robot can be used as an acoustic target for submarine training.

[Global Underwater Autonomous Vehicle \(AUV\) Market to Touch US\\$ 183.4 million by 2026; Growing at 20.4% CAGR during 2021-2026 - Exchange 99](#)

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## FACULTY:

### **Anti-Gravity, Time Travel, and Teleportation: Dr. Hamming Gives Advice**

*(HackDay 1 June 21) ... Al Williams*

You may not know the name [Richard Hamming], but you definitely use some of his work. While working for Bell Labs, he developed Hamming codes — the parent of a class of codes that detect, and sometimes correct, errors in everything from error-correcting memory to hard drives. He also worked on the Manhattan Project and was a lecturer at the **Naval Postgraduate School**.

Turns out [Hamming] has an entire class from the 1990s on YouTube and if you are interested in coding theory or several other topics, you could do worse than watch some of them. However, those videos aren't what attracted me to the lectures. As the last lecture of his course, [Hamming] used to give a talk called "You and Your Research" and you can see one of the times he delivered it in the video below. You might think that it won't apply to you because you aren't a professional academic or researcher, but don't be too quick to judge.

Turns out, [Hamming's] advice — even by his own admission — is pretty general purpose for your career or even your life. His premise: As far as we know, you have one life to live, so why shouldn't it be a worthwhile one by your definition of worthwhile.

Along the way, he has an odd combination of personal philosophy, advice for approaching technical problems, and survival skills for working with others. If you are in the field, you'll probably recognize at least some of the names he drops and you'll find some of this technical advice useful. But even if you aren't, you'll come away with something. Some of it seems like common sense, but it is different, somehow, to hear it spoken out loud. For example:

If you don't work on important problems, it's not likely that you'll do important work.

One piece of technical advice? Don't waste time working on problems you have no way to attack. He points out that anti-gravity, time travel, and teleportation would be very lucrative. But why work on them when there appears to be no way to even remotely accomplish them today. Well, at least when he said that. There has been a little progress on a form of teleportation, but that wasn't what he was talking about anyway.

While not a hack in the traditional sense, examining your life, career, and technical research to improve your own effectiveness is something to take seriously. We were hoping he would throw in a joke about error-correcting your career, but unless we blinked, no such luck.

Hamming's work on block codes was followed about ten years later by the Reed-Solomon code which is found nearly everywhere now. Hamming is also associated with the term "hamming distance," something we talked about when discussing Gray code.

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## Iranian Warship Thought to be Headed to Venezuela Left Port with 7 High-Speed Missile Boats Aboard

(USNI News.com 1 June 21) ... H I Sutton and Sam LaGrone

An Iranian Navy ship thought to be bound for Venezuela left its port in late April with seven high-speed missile-attack craft strapped to its deck, USNI News has learned.

According to imagery provided to USNI News by Maxar, the Iranian Navy's new forward-basing ship, IRINS Makran, was seen on April 28 after leaving its homeport with seven attack boats aboard.

Last week, citing three U.S. officials, Politico reported that the Pentagon believes Makran and an Iranian frigate were steaming down Africa's east coast ultimately bound for Venezuela. On Monday, Iranian Foreign Ministry officials asserted their rights to operate worldwide when asked about Makran heading to Venezuela.

"[Mistry spokesman] Saeed Khatibzadeh emphasized Iran's legal right to go through all international seas," according to a summary of a Monday press conference from the state-controlled Iran Press News Agency.

"Khatibzadeh also warned the U.S. officials about any actions against Iranian ships.

Those boats seen in the satellite images match the characteristics of the Peykaap family of medium-sized fast attack craft (FAC) operated by the sectarian Islamic Revolutionary Guard Corps Navy (IRGCN). The IRGCN is responsible for the coastal security of Iran and the Strait of Hormuz and similar vessels equipped with torpedoes and missiles have been used to harass U.S. ships in the Persian Gulf.

The seven missile craft aboard Makran are each approximately 57 feet (17.5 meters) long and match the Peykaap family of medium-sized fast attack craft operated by Iran. There are several variations of these craft in Iranian service, although all are generally similar. The latest Peykaap-II type (also known as the Bavar class) is 57 feet long and can carry two anti-ship missiles and two 12.75 inch torpedoes. The missiles could be of the Kowsar or Nasr types, which are derived from Chinese models with a quite modest range of around 18 nautical miles.

Additionally, the ship could be carrying other military equipment not readily apparent from the imagery. A converted oil tanker, Makran is the Iranian Navy's newest and largest warship. Its new role has been compared to the U.S. Navy's Expeditionary Sea Base (ESB). Like the ESBs, the 755-foot long Makran is designed to be a mobile sea base for small boats and aircraft capable of operating anywhere around the world. The conversion added a large flight deck, the capacity to carry boats and other equipment on deck and additional cargo below.

There has been concern that Venezuela may attempt to acquire ballistic missile technology from Iran. Some areas of the deck are now covered, so it has not been possible to assess the full cargo of the ship. Venezuela's regime, led by President Nicola Maduro, has talked openly about acquiring arms from Iran. Meanwhile, Iranian special forces belonging to the IRGC's Quds force may already be assisting the Venezuelan military.

If the boats are delivered, they may form the core of an asymmetrical warfare force within Venezuela's armed forces. This could be focused on disrupting shipping as a means of countering superior naval forces. Shipping routes to and from the Panama Canal are near the Venezuelan coast.

H I Sutton illustration used with permission

The Venezuelan Navy has tried over the last several years to beef up its own coastal defense ships with the acquisition of high-speed attack craft to enforce its territorial claims over the Caribbean Sea, according to an October entry in Jane's World Navies.

Messages left with spokespeople in U.S. Southern and Central commands on Tuesday were not immediately returned.

Pentagon spokesman John Kirby would not confirm the move of Makran or the cargo when asked by USNI News on Tuesday.

"The Southern Command certainly has the ability to look after our interests in that part of the world," he told reporters.



The deployment of Makran comes as Iran and Venezuela are growing closer together. Both governments are under sanctions from the U.S. government and have been restricted from accessing the global market.

Last year, the Maduro government exchanged nine tons of gold for assistance improving their petroleum refineries, reported Bloomberg. Iran has also shipped oil to Venezuela.

While it's unclear if the craft seen on aboard Makran are meant for the Venezuelan Navy as part of ongoing arms sales or if the Iranians will drill with Venezuela's own green water forces, the presence of the boats and U.S. officials' belief that the Iranian ship is headed for South America suggest increasing military cooperation between Caracas and Tehran.

"The IRGC began working with the Venezuelan military in the early 2000s, and the two sides have continued to have a murky security relationship ever since. That relationship grew stronger in response to the external pressure aimed at toppling Maduro. With few friends, Maduro has leaned into his relationship with Iran and the IRGC is seeking to capitalize on the situation. Iran has managed to develop a number of military weapons and systems that could be useful for smaller states. It's unsurprising that Venezuela might seek to procure some." Iran expert Afshon Ostovar, a professor in the Department of National Security Affairs at the **Naval Postgraduate School** and author of *Vanguard of the Imam: Religion, Politics, and Iran's Revolutionary Guards*, told USNI News on Tuesday.

"Selling FACs to the Venezuelans makes sense. Iran manufactured and outfits them. They're useful in a variety of ways and difficult to counter in swarms. Iran can't sell to many, but Venezuela is in that small category of potential buyers... This was just a matter of time, really."

In March, U.S. Southern Command commander Adm. Craig Faller warned the Senate that the two countries have continued to expand cooperation to trade military resources.

"In the past year, Iran has expanded economic and security cooperation with Venezuela on fuel transfers, food staples, and military assistance, possibly expanding the Quds Force's presence in the region," Faller said in a statement to the Senate Armed Services Committee.

"Tehran also relies on a system of Iranian state-sponsored and non-state facilitated media outlets to shape the information domain to generate empathy for Iran and Shia Islam and diminish Western influence in the hemisphere."

[UPDATED: Iranian Warship Thought to be Headed to Venezuela Left Port with 7 High-Speed Missile Boats Aboard - USNI News](#)

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## **AST Editorial Director Joins PWPORG Preparedness Advisory Board**

*(AmericanSecurityToday 3 June 21) ... Tammy Waitt*

PWPORG.ORG (Preparedness Without Paranoia) is a 501(c)(3) built by law enforcement and security industry practitioners and educators to provide educational resources to kids, families and communities on safety and emergency preparedness.

AST is pleased to announce that Tammy Waitt, Editorial and Managing Director at American Security Today has been invited to join the PWPORG Advisory Board, effective immediately.

Ms. Waitt holds a degree in criminal justice, has worked in a therapeutic environment with adjudicated adolescents in a medium security correctional facility, and has served as a sworn law enforcement officer in the State of New Jersey.

Additionally, Tammy spent five years managing a county rape crisis office and has worked extensively with county law enforcement officials and vulnerable/at-risk populations, including children.

She has four children and is the proud grandmother of ten grandchildren.

Ms. Waitt will serve alongside a group of strong women leaders who empower family preparedness, which includes:

Kathleen Kiernan, Founder of PWPORG and of Kiernan Group Holdings;



Deanee Johnson, Ph.D, most recently the Chief Program Officer at the National Center for Victims of Crime and CEO of Ascent Connection and Consulting Solutions (ACCS Online);

Laura J. Falvey, Ph.D, a career long educator in public elementary schools from Massachusetts to Alaska specializing in early childhood education;

Lucky® the Preparedness Dog is the mascot of the Preparedness Without Paranoia® Organization (PWPOrg).

Michelle Ward, Ph.D, a global educator from elementary school through university with a focus on integrating learner-centered technology into the classroom;

Heather Issvaron, the Director, Strategic Communications, Center for Homeland Defense and Security at the **Naval Postgraduate School**;

Tara Barber, Business Strategy and Planning Director for USAA, taking care of service members and their families.

Erin Hang, Senior Director of Vetting and Screening Service at Fortior Solutions, LLC., servicing military installations and core elements of critical of infrastructure; and

Lisa Marie, a global storyteller and building the narrative to counter human trafficking.

“We are honored to have Tammy join our Advisory Board,” stated Dr. Kathleen Kiernan, ” she brings the earned experience, relentless sense of mission, deep knowledge of security and tireless energy to build a safer and more prepared world.”

In addition to being Founder and CEO of national security, education, risk management and training firm Kiernan Group Holdings, Dr. Kiernan is Chair Emeritus of InfraGard National Members Alliance, and adjunct faculty member at the **Naval Postgraduate School**, and Advisory Board member for the Center for Advanced Red Teaming at the University of Albany, SUNY.

[AST Editorial Director Joins PWPOrg Preparedness Advisory Board - American Security Today](#)

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## **Excellence in Homeland Security**

*(AmericanSecurityToday 3 June 21)*

Dr. Kathleen Kiernan is the Founder and CEO of national security, education, risk management and compliance firm Kiernan Group Holdings, Chair Emeritus of InfraGard National Members Alliance, and adjunct faculty member at Johns Hopkins University and **Naval Postgraduate School**.

Dr. Kathleen Kiernan is a 29-year veteran of Federal Law Enforcement, previously serving as the Assistant Director for the Office of Strategic Intelligence and Information for the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF).

GOT Preparedness® (Got Online Training), was built specifically for dispersed and remote workforces and we have trained thousands of individuals domestically and internationally.

She has delivered operational and educational capabilities across the globe and developed a methodological based approach to the resiliency cycle at an individual and organizational level.

['ASTORS' Award Winner Evolv Wins U.S. Air Force Award Contract - American Security Today](#)

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## **The State Stays Dark: Mafia Politics Return To Turkey**

*(WaronTheRocks 7 June 21)* ... Ryan Gingeras

There was a moment a decade ago when it appeared that the mafia's influence over Turkish politics had ended. Since the 1970s, individuals from Turkey's underworld had been the focus of a series of scandals that rocked the country's political establishment. But by 2009 a number of renowned godfathers were either on trial or already serving long prison terms. Then-Prime Minister Recep Tayyip Erdoğan declared that his government's "clean hands" policies would pull the country out of the dark pits of corruption in which it had been mired. Amid this optimism, some remained cautious. "These [criminal]



structures are currently asleep,” one retired police official declared in 2011. “However, they can become active again if they find a suitable political environment.”

An absurd series of events over the last three weeks makes this warning appear prophetic. A notorious crime boss named Sedat Peker has released a series of YouTube videos from Dubai levying lurid and detailed accusations against the Turkish government. He’s accused one member of parliament, the son of a notorious interior minister, of rape and murder. He’s accused the son of Erdoğan’s former prime minister of attempting to smuggle five tons of cocaine into Turkey. And, to explain why these men have never been charged, he has accused Erdoğan’s powerful interior minister, Süleyman Soylu, of protecting them. Though Peker offers no proof for these claims, Soylu and others mentioned in his broadcasts have scrambled to respond. Erdoğan has continued to back his interior minister but has refused to address Peker’s specific charges.

Not surprisingly, Peker’s videos have captured the attention of journalists in both Turkey and abroad. Reporters have been quick to find in them proof that gangsters still hold the reins of power in Turkey and that Erdoğan, like his predecessors, is complicit. Some have gone further, suggesting that Peker’s revelations confirm that gangsters are engrained elements of the Turkish state itself. But as true as all these conclusions might be, they underscore an even deeper continuity — in the taboos and censorship surrounding discussing or investigating organized crime in Turkey. Whatever the alignment of interests between gangsters and the Erdoğan government are, both parties are eager for them to remain less than transparent. Turkey, unfortunately, has been here many times before. While some commentators hope that Peker’s revelations may finally spell Erdoğan’s political demise, he has muddled through past corruption scandals. He may do so again.

### **Sedat Peker and the Return of the Mafia State**

In retrospect, it should surprise no one that Sedat Peker is now the source of so much controversy. Though raised in Germany, he has been the focus of public fascination in Turkey since the late 1990s. Peker is among the last of a generation of prominent *kabadayı*, a historic class of “toughs-for-hire” known for extortion, racketeering and other strongarm services. Unlike drug traffickers, who are less regularly the subject of media attention, the Turkish press tend to romanticize the likes of Peker and others in the *kabadayı* trade. Though indicted for acts of criminal coercion in 1998 and 2005, Peker has managed to avoid prosecution in a host of other cases, such acts as fixing soccer matches in Turkey and lending support to a motorcycle gang in Germany. From the start, Peker has embraced his notoriety. He has been photographed regularly in the company of celebrities and has rarely shied from giving interviews. Before his recent spate of YouTube videos, Peker was active on Facebook, publishing speeches and interacting with supporters.

More than anything, Sedat Peker is a political animal. Since his youth, he has been an active participant in ultra-nationalist causes. To this day, he remains a folk hero among far-right groups such as the Nationalist Movement Party, which joined Erdoğan’s administration in 2018 as a junior coalition member. Above all, Peker has never made a secret of his willingness to act as an informant for both the police and the press. He has declared in print and on the witness stand that he has long maintained strong ties to law enforcement and has served as an informant and triggerman in the state’s efforts to combat Kurdish militants and other threats to national security. During the 2008 Ergenekon trials, this briefly put him on the wrong side of the Erdoğan government. But his conviction only briefly halted his time in the spotlight. The government’s decision to vacate the Ergenekon verdicts led to his release from prison in 2014. Thereafter he reestablished himself as a supporter and campaign surrogate for Erdoğan’s Justice and Development Party. Photos soon circulated of Peker warmly greeting Turkey’s president at an Istanbul wedding. In 2015, he declared to a crowd of thousands to stand prepared to “bathe in the blood” of those who had signed a petition calling for peace in Kurdish portions of the country. Since then, Peker has escaped legal accountability for this and other acts of incitement against government opponents. The implications of the court’s inaction appeared clear. Sedat Peker was being protected from on high.

His life, however, took an odd series of turns since 2020. Early that year he posted a message on Instagram saying that he had left Turkey and was resettling in the Balkans — supposedly with an eye to pursuing an undergraduate degree. Rumors immediately swirled that he had to flee the country to escape



the vengeance of a long-time rival from the Turkish underworld. Instead, Peker revealed that Erdoğan's son-in-law, then-Minister of Finance Berat Albayrak was "working to destroy him." Events came to a head in April 2021 when investigators conducted a series of raids in five districts across the country, targeting Peker's home and arresting 49 of his accused associates. Initial reports claimed that he and others were being investigated for a host of crimes, such as kidnapping, extortion, bribery, and causing bodily harm. But it remains unclear if Turkish authorities have subsequently issued an international arrest warrant. The abuse his family suffered at the hands of investigating agents, Peker claimed, is among the reasons why he has chosen to post his now infamous video series.

The accusations Peker is making against public officials and other high-profile figures are numerous and often outrageous. In addition to detailing a supposed feud between Soylu and Albayrak, he accuses the current interior minister of covering up cases of drug trafficking, rape, murder and extortion. Among other murders, Peker claims former officials orchestrated the killings of journalists in the 1990s for investigating government wrongdoing. With millions of Turks now glued to Peker's social media posts, many of those implicated in his videos have issued flailing responses. Binali Yıldırım, Erdoğan's former prime minister, confirmed Peker's assertion that his son had conducted business in Venezuela. But the business was COVID-19 aid, he insisted, not cocaine. Meanwhile Süleyman Soylu appeared for hours on a popular talk show, arguing that Peker's videos constitute a grand plot against the country. A passive set of five journalists quietly listened as the minister cast blame on a host of potential conspirators, such as opposition party members and the BBC. Erdoğan, for the most part, has remained relatively mute through the scandal. "Like terrorist organizations," he has cryptically declared, "Criminal gangs are a poisonous snake. If you enter the same sack with them, you will consent to what will happen to you later."

### **What Don't We Know and How Don't We Know It?**

This is hardly the first high-profile, highly political mafia scandal in Turkey. There are any number of cases over the last several decades where international affairs, Turkish politics, and organized crime overlap. Among the earliest was the 1972 arrest of Kudret Bayhan, a Nationalist Action Party senator apprehended while smuggling 146 kilos of morphine into France. Bayhan's prosecution, many observed, highlighted Turkey's role in the "French Connection" heroin trade between Europe and the Americas. There was also the case of Mehmet Ali Ağca, the would-be assassin of Pope John Paul II. While some enquiries linked him to a possible Warsaw Block conspiracy, journalists and U.S. investigators argued Ağca's motivations were rooted in his history in the Grey Wolves, a violent ultra-nationalist organization known for its ties to both prominent Turkish politicians as well as international drug traffickers. For Turks, it is the 1996 Susurluk scandal that best crystalizes the country's troubled relationship with organized crime. Susurluk's chief revelation, that the government had harbored known heroin traffickers and employed them as assassins, epitomized a decade marred by violence and corruption in Turkish politics.

But tracing the history of organized crime, and its relationship to the Turkish state, is daunting. Access to the relevant archives, such as the interior ministry's records, remains restricted. Among the few resources available to contemporary researchers are the papers of diplomats and law enforcement officials found in the National Archive in Washington. As I detail in my book, American agents assigned to assist Turkish police officers and gendarmes often discovered murky ties between state officials and gangsters. As early as the 1930s, American counter-narcotics officers encountered instances when state police and officials gave sanctuary to major heroin traffickers. By the fifties and sixties, agents uncovered evidence that suggested that parliamentarians and cabinet members actively protected or participated in drug trafficking. By the 1970s, generals privately confided to U.S. diplomats that past government officials were "involved [in] opium trafficking as major violators." American officials, however, never went public with this information. For much of the 20th century, Turkish politicians and journalists were equally as reticent in revealing the names of prominent drug traffickers. None of Turkey's original drug kingpins, such as İhsan Sekban and Hüseyin Eminoglu, were ever indicted on trafficking charges. And only rarely did their names appear in newspapers.



Apart from a limited set of parliamentary hearings into the Susurluk scandal, no public inquest dealing with the nature of state-mafia relations has ever occurred. Journalistic accounts of how gangsters influence politics abound but vary in quality and scope. Relatively few offer verifiable sources. Most, instead, traffic in strains of gossip. Several journalists known to have taken the greatest risks in probing the role of the mafia in politics, such as Abdi Ipekci and Uğur Mumcu, were assassinated. Both of their cases remain unsolved.

### **A Murky Future?**

When Erdoğan himself faced corruption accusations before, he succeeded in making sure they remained just as opaque. In December 2013, Erdoğan's government was thrown into chaos when investigators indicted the sons of several prominent ministers for graft and helping Iran evade sanctions. An anonymous source subsequently posted wiretapped phone recordings of Erdoğan ordering his sons to hide money. Erdoğan, however, survived in part by purging the investigators and casting the scandal as a conspiracy masterminded by Fetullah Gülen and a host of international actors. Now, Erdoğan's allies in the Turkish media are construing Peker's videos as a continuation of this plot. Meanwhile, there are signs that large numbers of Turkish voters are not even paying attention. According to one poll, more than half of Justice and Development Party voters were unaware of the existence of the videos. Perhaps Erdoğan will dodge another bullet.

For now, Peker continues to promise new videos, and Turkey's commentariat continues to churn out analysis of the scandal's significance. His revelations have been a godsend for the country's opposition press, with multiple outlets devoting their full attention to the story's various twists and turns. A recurring theme in popular discussions is the issue of continuity. For some, the question is just how different Erdoğan's mafia state is from past corrupt governments. Journalist and politician Ahmet Şık, who has called for a parliamentary investigation into Peker's accusations, has suggested that the videos are proof that there is "no change in the dark, bloody and dirty hierarchy" governing the country. Others suggest that Turkey, under Erdoğan, has crossed into a new frontier as a de facto narco-state akin to Nicolas Maduro's Venezuela.

So is Turkey run by gangsters? Was it always? There is no denying that it is often difficult to find a clean historical rift between Turkey's underworld and the political establishment. But this is by no means a uniquely Turkish condition. It might make more sense to see Sedat Peker's videos as a symptom of a different historic tradition: the lack of official transparency. Given Erdoğan's stranglehold over the state, no institution, be it the judiciary, the police, or the parliament, appears both willing and able to pursue justice. For the most part, the press can only watch and report what Peker says next. As a result, we are unlikely to ever know just how true Peker's allegations actually are. For many listeners, Peker's accusations confirm what they already suspect is the truth, no matter how little evidence he offers. And Peker himself has hinted that there are still more secrets to be told — including those that he himself may not wish to share. When the Turkish state cannot be trusted to police itself, citizens and observers alike are left to rely on the word of a gangster.

Ryan Gingeras is a professor in the Department of National Security Affairs at the Naval Postgraduate School and is an expert on Turkish, Balkan, and Middle East history. He is the author of five books, including most recently, *Eternal Dawn: Turkey in the Age of Atatürk*. His *Sorrowful Shores: Violence, Ethnicity, and the End of the Ottoman Empire* received short-list distinctions for the Rothschild Book Prize in Nationalism and Ethnic Studies and the British-Kuwait Friendship Society Book Prize. The views expressed here are not those of the Naval Postgraduate School, the U.S. Navy, the Department of Defense, or any part of the U.S. government.

[The State Stays Dark: Mafia Politics Return to Turkey - War on the Rocks](#)

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## Physiological and Cognitive Performance in F-22 Pilots During Day and Night Flying

(*Ingenta Connect May 21*) Jennifer A. Heissel **Naval Postgraduate School** Assistant Professor

**BACKGROUND:** Many workers routinely transition between day and night shifts including pilots, where night flights are commonly considered more stressful. The physiological toll from this transition is not fully understood, though fatigue is a factor in many aviation accidents. This research investigated the changes in physiological markers of stress and cognitive performance as F-22 pilots transitioned from day flying to night flying.

**METHODS:** There were 17 fully-qualified F-22 pilots who took part in a 2-wk data collection using salivary swabs, wrist-worn activity monitors, the National Aeronautics and Space Administration-Task Load Index (NASA-TLX) inventory, and a go/no-go (GNG) test.

**RESULTS:** No differences were found in comparing day and night flying on the GNG reaction time/accuracy, NASA-TLX scores, or sleep quantity. Cortisol levels were significantly higher than civilian levels in all experimental conditions and control days. Participants had higher than predicted cortisol levels postflight in the day-flying condition and lower than predicted cortisol levels postflight in the night-flying condition, relative to levels from control day patterns. We also found smaller changes in cortisol (pre- to postflight) in the day-flying condition for those with more F-22 experience. Finally, we found a negative correlation between Perceived Stress Scale scores and age of pilots ( $r = 0.72$ ).

**DISCUSSION:** We hypothesized that the night-flying environment would be more stressful, but our results disputed this claim. Our results suggest day flying elicits more of a stress response; however, a larger sample size is required to verify results. Preliminary findings of potential stress adaptation may suggest stress adaptation in the F-22 community needs further investigation.

Combs EK, Dahlman AS, Shattuck NL, Heissel JA, Whitaker LR. Physiological and cognitive performance in F-22 pilots during day and night flying. *Aerosp Med Hum Perform.* 2021; 92(5):303311.

[Physiological and Cognitive Performance in F-22 Pilots During Day...: Ingenta Connect](#)

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## Testing, Stress, and Performance: How Students Respond Physiologically to High-Stakes Testing

(*MIT Press Direct April 21*) ... Jennifer A. Heissel **Naval Postgraduate School** Assistant Professor, Emma K. Adam, Jennifer L. Doleac, David N. Figlio

### Abstract

We examine how students' physiological stress differs between a regular school week and a high-stakes testing week, and we raise questions about how to interpret high-stakes test scores. A potential contributor to socioeconomic disparities in academic performance is the difference in the level of stress experienced by students outside of school. Chronic stress—due to neighborhood violence, poverty, or family instability—can affect how individuals' bodies respond to stressors in general, including the stress of standardized testing. This, in turn, can affect whether performance on standardized tests is a valid measure of students' actual ability. We collect data on students' stress responses using cortisol samples provided by low-income students in New Orleans. We measure how their cortisol patterns change during high-stakes testing weeks relative to baseline weeks. We find that high-stakes testing is related to cortisol responses, and those responses are related to test performance. Those who responded most strongly, with either increases or decreases in cortisol, scored 0.40 standard deviations lower than expected on the high-stakes exam.

[Testing, Stress, and Performance: How Students Respond Physiologically to High-Stakes Testing | Education Finance and Policy | MIT Press](#)



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## ALUMNI:

### Contracting battalion welcomes new leader

(CSMNG.com 1 June 21) ... Scott Prater

Lt. Col. Amy A. Saal assumed command of the 918th Contracting Battalion during a ceremony at Manhart Field May 21, 2021.

Col. Joel M. Greer, commander, 418th Contracting Support Brigade, Fort Hood, Texas, presided over the ceremony where Lt. Col. James “JB” Burkes relinquished command of the battalion to Saal.

“It’s always bittersweet to say goodbye to a great leader,” Greer said following the traditional passing of the unit colors. “It’s been a pleasure to watch JB serve as the commander here at the 918th. His focus has been on enhancing operational readiness and providing operational support to the 4th Infantry Division and Fort Carson. Col. Burkes and his team have been a magnificent part of that enhanced readiness, and we appreciate his great leadership. He forged the 918th into the great unit seen here today.”

While leading the 918th CBN, Burkes commanded a unit that executed over 1,300 contract actions valued at over \$300 million in support of base operations.

“He also deployed as the commander at the RCCA (Regional Contracting Center-Afghanistan) in Afghanistan,” said Greer. “We appreciate everything he has done, and I have no doubt that we put a great lieutenant colonel in command of the 918th as we watched him be selected for colonel.”

Saal arrives at Fort Carson after serving at Army Contracting Command — Redstone. She is a graduate of the United States Military Academy at West Point, where she was a four-year letter winner and captain of the Army’s Women’s Basketball Team. She holds a Master of Business Administration degree from the **Naval Postgraduate School**, has served in a variety of career fields including acquisition, logistics and distribution and performed a variety of roles including a leadership position at Army Materiel Command.

A veteran deployer, Saal has earned the Bronze Star Medal and Afghanistan Campaign and Iraq Campaign Medals among several other individual medals, awards and citations.

“Amy (Saal), welcome back to mission and installation contracting command,” Greer said. “I believe you are a great leader for the 918th, and I have no doubt the 918th is in good hands with you at the helm. All one has to do is follow the news to know that today’s Army is facing tighter budget challenges along with increasing threats every year.”

Following his command at Fort Carson, Burkes will head to Washington, D.C. to attend Senior Service College.

“Lt. Col. Saal, I’m confident in your ability to take this organization further than I ever could,” Burkes said during his farewell speech. “You are the right person at the right time for this job, and I look forward to hearing of your great feats in the future.”

During her words to attendees, Saal thanked the Soldiers and civilians of the 918th CBN and said it is an honor to be leading a successful team of dedicated professionals.

“Lt. Col. Burkes has built an outstanding organization,” she said. “What the team has accomplished is phenomenal. I’m proud to share this field with you today. I look forward to facing the challenges ahead as we continue to build capable and deployable contracting detachments to support our nation’s warfighters.”

[Contracting battalion welcomes new leader | Colorado Springs Military Newspaper Group \(csmng.com\)](#)

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## **Dampier Named Dean of College of Engineering and Computer Sciences**

*(Huntington News 3 June 21)*

*(Herald-Dispatch 6 June 21)*

After serving in the position for the past year, David A. Dampier has been appointed as dean of Marshall University's College of Engineering and Computer Sciences at Marshall University, effective July 3.

Jaime R. Taylor, provost and senior vice-president for academic affairs, met with the college's associate dean and chairs, and requested faculty input naming a new dean. Taylor said they showed overwhelming support to make Dampier's appointment permanent.

"I've been very pleased with Dr. Dampier since his appointment as interim dean of the College of Engineering and Computer Sciences in August of 2020," Taylor said in a University-issued press release. "He has very quickly enhanced Marshall University's relationship with Marshall alumni, local industry and several federal granting agencies. He has also positioned the college for further growth by collaborating with other colleges on strategic degree program development.

"It has always been clear to me that Dean Dampier's desire is to do what is in the best interest of Marshall University, and for the students and community it serves," Taylor added.

Prior to joining Marshall in July 2019, Dampier was the chairman of the Department of Information Systems and Cyber Security at the University of Texas-San Antonio and founding director of the Distributed Analytics and Security Institute at Mississippi State University. He has 70 peer-reviewed publications and more than \$50 million in external funding.

Before higher education, he spent 20 years as an Army automation officer. He has a Ph.D. in computer science from the **Naval Postgraduate School**. His research interests include cyber security, digital forensics and applications of software engineering.

"I am proud to be working with such a superb staff and faculty in the college," Dampier said.

"We have worked very hard this year to make the college more efficient and strengthen our core capabilities. We have increased our research expenditures and publications."

"In the future," Dampier added, "we look to continue to streamline our programs and grow our student body at both undergraduate and graduate levels. This includes proposing a new doctoral program in engineering that will serve the entire college."

[Dampier Named Dean of College of Engineering and Computer Sciences | Huntington News](#)

[Dampier named dean of College of Engineering and Computer Sciences | News | herald-dispatch.com](#)

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## **Fire Chief Whitney begins at Superstition Fire & Medical District**

*(yourValley.net 4 June 21)*

June 1 was Fire Chief John Whitney's official first day at Superstition Fire & Medical District.

Chief Whitney started his career in 1996 with the U.S. Forest Service and was hired by Rural/Metro in 1999, according to a post on Facebook @sfmd.az.gov.

He joined the Scottsdale Fire Department as a captain in 2005 and was promoted to battalion chief in 2011. He was promoted to deputy chief in 2013, where he worked in a multitude of divisions, including operations, EMS, special events, prevention and most recently administrative services, the post states.

He has a bachelor's degree in interdisciplinary studies in biology and political science from Arizona State University and a Master of Science degree in emergency management from Arizona State University.

Chief Whitney was awarded a scholarship from the International Association of Fire Fighters and attended the Harvard University Trade Union Program in Cambridge. He also completed the certified public manager program at Arizona State University. He recently completed the Center for Homeland Defense and Security master's program at the **Naval Postgraduate School**.

"I am beyond grateful to be a part of such a great organization," Chief Whitney said in the post, "and I truly look forward to being a part of its bright future."



The fire district provides fire suppression and prevention, wildland protection, advanced life support, rescue, extrication and medical transportation services out of five fire stations: Fire Station 261, 1135 W. Superstition Blvd. in Apache Junction; Fire Station 262, 3955 E. Superstition Blvd. in Apache Junction; Fire Station 263, 1645 S. Idaho Road in Apache Junction; Fire Station 264, 7557 E. U.S. Highway 60 in Gold Canyon; and Fire Station 265, 9294 E. Don Donnelly Trail in Gold Canyon.

Under the SFMD Governing Board's direction, the fire chief oversees a budget of \$23.7 million through four divisions, each led by an assistant chief or a director. They are: emergency services operations, which includes transport; planning and logistics; administrative services; and financial services.

[Fire Chief Whitney begins at Superstition Fire & Medical District | Your Valley](#)

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## **Naperville resident named top Aurora University teacher**

*(Daily Herald 5 June 21)*

David Dial of Naperville, Aurora University associate professor and chair of criminal justice, was recently recognized as AU's 2020 Marcus and Mark H. Trumbo award winner for excellence in teaching. Nominated by students and fellow faculty members, the award is the university's most prestigious faculty recognition.

Dial, former Naperville police chief, was lauded as "an exceptional teacher, skilled department chair, powerful advocate for students and enthusiastic campus citizen." He was described as caring, passionate, dedicated and knowledgeable.

Dial joined the university in 2012 after retiring as Naperville chief of police from 1990, ending a 45-career in law enforcement.

He graduated from the FBI National Academy and the Police Executive Research Forum's Senior Management Institute for Police. In Naperville, he attended the FBI's Law Enforcement Executive Development Seminar and became a charter member of Police Futurists International.

Dial is a former chairman of the DuPage Metropolitan Enforcement Group and a past-president of the DuPage County Chiefs' of Police Association. He is a member of the International Association of Chiefs' of Police Community Policing Committee, a former board member of the Illinois Association of Chiefs' of Police, and the Illinois State Terrorism Task Force.

He also chaired the Homeland Security Committee for the DuPage County Chiefs' of Police Association.

Dial earned bachelor's and master's degrees from San Jose State College and the University of Colorado, respectively, and attended the FBI national academy. In 2006, he earned a second master's degree with a major in Homeland Security and Defense, from the United States **Naval Postgraduate School**. After graduating from college, he took a two-year military leave of absence from the Milpitas, Calif., police department and served for a year as a military intelligence officer in Vietnam, earning three bronze stars for meritorious service.

Inaugurated in 1976, the Trumbo award recognizes the finest work of fulltime AU faculty as teachers, mentors and scholars.

[Naperville resident named top Aurora University teacher \(dailyherald.com\)](#)

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## **Calvo assumes command of DLA Distribution Puget Sound**

*(The Guam Daily Post 7 June 21)*

The reins of command at Defense Logistics Agency Distribution Puget Sound, Washington, were handed to Navy Cmdr. Timothy J. Calvo in a ceremony held May 27.



Calvo is from Yigo. He graduated from Father Duenas Memorial School and from the University of Portland in 2001 with a bachelor's degree in life science. He received his commission via Officer Candidate School in 2002. Calvo holds a Master of Business Administration in financial management from the **Naval Postgraduate School**.

Most recently he served on the staff of the Director, Warfare Integration.

Calvo's joint individual augmentation assignments include serving as deputy logistics officer for the U.S. Security Coordinator for Israel and the Palestinian Authority and as the director for Resources to Commander, Combined Joint Task Force Horn of Africa, in Djibouti.

[Calvo assumes command of DLA Distribution Puget Sound | Guam News | postguam.com](#)

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