

Fall 2024 Undersea Warfare Conference

Delivering Decisive Combat Power

UNDERSEA WARFARE DIVISION



Marie Bussiere, SES
Technical Director,
NUWC Division Newport

Every day, events on the world stage remind us of the critical role of the undersea domain in maintaining global stability. The news is filled with stories of evolving and emerging threats to the United States and our democratic allies across the world. This landscape is complex and multifaceted, from the acute threats posed by China and Russia to the unpredictable actions of other regional actors.

The Naval Undersea Warfare Center Division Newport and the undersea enterprise play a crucial part in helping to deter aggression, defend our national security interests, and preserve our way of life. It is absolutely essential we deliver decisive combat power to our warfighters and Submarine Force operating our nation’s apex predators. We are responsible for the success of naval programs. We are the bridge and the technical nexus between technology and the warfighter. It is our job to understand the requirements and to develop capabilities that deliver those requirements.

To do this, we must hone our wartime readiness plans and processes, as well as fleet support roles, all while ensuring we continue to deliver platforms, systems, and critical capabilities for the future. We must ensure that our workforce is equipped with the knowledge and tools required to build the experience base needed to succeed in our domain. We must rapidly innovate, build, and deliver technological solutions to the warfighter.

There is no doubt in our ability to meet these challenges, because our enterprise has a decisive advantage: our people. We have a tremendous workforce that brings not only full-spectrum knowledge and experience but, most importantly, diversity of thought.

To quote our Chief of Naval Operations, Adm. Lisa Franchetti,

“Our Navy has the very best ships, submarines, and aircraft, but without our people, they go nowhere and they do nothing. I think our people are our true secret weapon. They give us a decisive edge, and because of them, our Navy remains the preeminent fighting force on, under, and above the sea.”

As we strive for undersea superiority, today and tomorrow, we must think strategically, tactically, and operationally. We must take an honest look at our mechanisms, processes, behavior, and culture to ensure we are building as efficient an organization as possible to meet the demands and challenges ahead.

This includes performing top-down and bottom-up reflection, organizational maturity assessments, and understanding where we need to transform and improve. We must analyze findings and prioritize overcoming barriers to achieving strategic goals, and bolster our existing strengths. We must target the best opportunities for change, working as a cohesive and efficient organization, continually meeting and exceeding expectations. We must get real and get better about building one Navy-Marine Corps team for the betterment of America’s warfighting capacity.

As we rise to meet this challenge, we must do so in unison. It must include all of the warfare center enterprise, as well as science and technology (S&T) organizations, university-

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affiliated research centers (UARCs), federally funded research and development centers (FFRDCs), partner nations, industry, academia and the fleet itself. It takes each and every one of us, every day, in every area of our portfolio to ensure we are building great people, great leaders, and great teams. To continue to thrive, we need to capitalize on our different perspectives and approaches to maximize our ability to contribute to enduring undersea dominance.

U.S. Submarine Forces and supporting organizations are the primary undersea arm of the Navy – our submarines and their crews the tip of the undersea spear. The contributions of the undersea enterprise remain ever essential to preserving the American way of life.

What we do matters, today and always.

Division Chair's Message



Alan Lytle

Chairman, Undersea Warfare Division

On behalf of the leadership team of the National Defense Industrial Association (NDIA) Undersea Warfare Division (UWD), it is my distinct pleasure and honor to welcome you all to the 2024 Fall Conference. Our "Clambake" is a choice opportunity to reconnect

with colleagues, form new relationships, and participate in an important dialogue amongst government, industry, and academia. The purpose of this symposium is to ensure we are all strongly aligned to maintain our nation's pre-eminent position in the undersea domain.

This year, for the first time, we have the honor of sharing this symposium with our AUKUS tri-lateral security partners. The importance of the undersea domain to our global security is well established, as is the importance of strong allied partnerships.

It is within this backdrop that we are exceptionally pleased to welcome our Royal Navy and Royal Australian Navy colleagues to this fall conference. Restating our purpose:

To ensure we are all strongly aligned to strengthen our combined pre-eminent position in the underwater battlespace.

On behalf of our UWD Executive Board and Advisory Council, thank you and your organizations for your continued support of the NDIA Undersea Warfare Division, our warfighters, and these conferences. We extend our appreciation to our plenary speakers, program managers, technical presenters, and intelligence analysts for taking the time to brief our undersea warfare community. Finally, special thanks to our Naval Undersea Warfare Center partners, without whom this conference would not be possible.

We hope you enjoy this Fall Conference. Thank you for attending. Thank you in advance for constructive feedback so we can keep improving your experience and the value this event brings.

Spring 2024 NDIA Undersea Warfare Awards



Awards Committee:

Pierre Corriveau, PhD

Chairman

CAPT Tim Salter, USN (Ret)

Deputy Chair

Chuck Fralick

Committee member

The Undersea Warfare Division (UWD) of the National Defense Industrial Association (NDIA) presents annual awards to assist in supporting and recognizing the USW defense technical and engineering base. We continue this legacy by conferring the 2024 Spring awards.

NDIA UWD is pleased to present the **Vice Admiral Charles B. Martell-David Bushnell Award** to Dr. Jason Gomez, PhD, Chief Technology Officer at the Naval Undersea Warfare Division Newport; the **Vice Admiral Charles E. Weakley Awards** to Dr. Martin Irvine, PhD Executive Director NAVSEA Warfare Centers and Dr. Robert M. Koch, PhD Senior Technologist for Undersea Tactical Stealth; and the **Captain George W. Ringenberg Award** to Mr. Glen Sharpe, Senior Director Business Development Undersea Warfare, Advanced Acoustic Concepts. In addition, we are pleased to present the **Rear Admiral Jack Jarabak Award** to LCDR Erika A. Fee, Naval Post Graduate School, for her exceptional contributions in the field of Undersea Warfare.

The **VADM Charles B. Martell-David Bushnell Award** for exceptional contributions in the field of ASW and/or Undersea Warfare Technology



Dr. Jason Gomez, PhD

Chief Technology Officer, NUWC Newport, Naval Undersea Warfare Division Newport, RI

Dr. Gomez is the Chief Technology Officer at Naval Undersea Warfare Center Division Newport and his 31+ year Navy career has been characterized by his technical expertise, professionalism, and dedication to the Navy’s mission by providing a foundation for resolving undersea warfare (USW) problems critical to our national security. He has been a driving force behind many novel technology initiatives leading to numerous advanced technology efforts that have significantly contributed to the Navy’s undersea warfare superiority. Dr. Gomez is an exemplary basic and applied researcher. His success on such programs as the ONR Heavyweight/Lightweight Swampworks Torpedo, the DARPA

Underwater Express and DARPA Blue Wolf as well as the SCO Contender Programs demonstrated his ability to build and lead talented cross disciplined teams. These critical programs involved cross Warfare Centers partnerships and engagement with national laboratories, and industry. For example, under his leadership the Underwater Express program developed a large controllable supercavitating vehicle which became the world’s fastest electric underwater vehicle.

For his excellent leadership and unwavering dedication that has significantly benefited our Undersea Warfare Community, the Undersea Warfare Division of the National Defense Industrial Association is honored to present the 2024 VADM Charles B. Martell-David Bushnell Award to Dr. Jason Gomez.

The **VADM Charles E. Weakley Award** for meritorious service and noteworthy contributions to effective Government Industry communications in the field of Undersea Warfare



Dr. Martin Irvine, SES

Executive Director, NAVSEA Warfare Centers

Dr. Martin Irvine currently serves as the Executive Director for Naval Surface and Undersea Warfare Centers. He is responsible for leading the civilian scientists, and engineering workforce within ten divisions located across the country. Prior to this, he was the Executive Director, Submarine Forces and the principal advisor to the Submarine Force Commander on all matters relating to Strategic Deterrence and Undersea Warfare. Dr. Irvine has led the initiation and execution of the AUKUS Pillar 2 USW Advanced Capabilities Working Group, with Australia, the United Kingdom, and the United States, which will deliver USW capabilities for member navies. From 2019 to 2021 Dr. Irvine was the

Technical Director of the Naval Undersea Warfare Center (NUWC) Division, Keyport in Keyport, Washington. Throughout his career, Dr. Irvine has been committed to sharing and growing the knowledge base within the greater DoD community through regular contributions at USW conferences and events. He also fosters collaboration between academia, industry, Navy Labs, and the acquisition community.

In recognition of his noteworthy contributions to advancing the field of Undersea Warfare and in promoting effective government/industry communications, the Undersea Warfare Division of the National Defense Industrial Association is honored to present Dr. Martin Irvine with the 2024 VADM Charles E. Weakley Award.

The **VADM Charles E. Weakley Award** for meritorious service and noteworthy contributions to effective Government Industry communications in the field of Undersea Warfare



Dr. Robert M. Koch, PhD

Senior Technologist for Undersea Tactical Stealth, Naval Sea Systems Command

As the Senior Technologist for Undersea Tactical Stealth Systems for the U.S. Navy, Dr. Robert M. Koch has served the undersea community as a civil servant for more than 30 years. Dr. Koch has focused his professional career on advancing undersea warfare technologies by advocating for and influencing the practice of rigorous underwater acoustics engineering. Since 2009, he has been the U.S. Navy's Chief Scientist responsible for stimulating, planning, coordinating and reviewing the full spectrum of R&D and T&E efforts applicable to the development of acoustic and non-acoustic signature control and reduction techniques to undersea warfare systems. Dr. Koch is an

internationally recognized researcher in advanced high-energy shock, structural- and hydro-acoustics noise propagation, and applied mechanics.

Dr. Koch has authored dozens of papers and presentations to the scientific journals and conferences. He has held leadership positions on several boards and committees and won a number of awards during his illustrious career. Within the USW community, Dr. Koch's commitment to influence and communicate is unparalleled. He has served in a variety of national and international technical leadership capacities that involve extensive communication among undersea warfare researchers at all levels across government, industry and academia. Dr. Koch's support of NDIA has been noteworthy by mentoring and encouraging the next generation of scientists to present at national events including the UWD.

In recognition of his noteworthy contributions to advancing the field of Undersea Warfare and in promoting effective government/industry communications, the Undersea Warfare Division of the National Defense Industrial Association is honored to present Dr. Robert M. Koch with the 2024 VADM Charles E. Weakley Award.

The **Captain George Ringenberg Award** is presented to those who, through their service and leadership, have made noteworthy contributions to the Undersea Warfare Division



Mr. Glen Sharpe

Senior Director Business Development Undersea Warfare, Advanced Acoustic Concepts

Mr. Sharpe has been an active member of the NDIA Undersea Warfare Division's executive board since 2011. Throughout his 13+ years of leadership and service to the NDIA, Glen has provided unwavering support to help the Undersea Warfare Division execute its mission of fostering the exchange of technical information with government and industry while enabling the expansion of R&D in areas related to airborne undersea warfare. As the Aviation Committee Chair, Glen has been responsible for planning the technical sessions for both the Spring and Fall NDIA UWD conferences.

Glen is continuously developing and securing a strong slate of technical presentations and featured speakers through outreach to the USW Aviation community throughout the Navy Labs as well as within industry. Glen has worked in collaboration with the other UWD Committee Chairs and NDIA staff to coordinate abstracts and develop strong technical presentations for the USW Conferences while focusing on the Aviation section.

The Undersea Warfare Division is proud to recognize Mr. Glen Sharpe with the 2024 Captain George Ringenberg Award for his outstanding contributions and service to the U.S. Government, the National Defense Industrial Association, and the Undersea Warfare Division.

The **Rear Admiral Jack Jarabak Award** is presented by the UWD in conjunction with the Naval Postgraduate School’s Undersea Warfare Executive Committee, to recognize a deserving student for their contribution in the field of USW



LCDR Erika A. Fee, USN

Academic Achievements in USW Undersea Warfare Technology, Naval Postgraduate School, Monterey, California

This year’s winner is LCDR Erika A. Fee, USN. LCDR Fee has distinguished herself with an outstanding academic career within the Meteorology and Oceanography departments where she graduated with an MS in Meteorology and Physical Oceanography.

Her thesis, *“Acoustic Detection Of Wakes Generated By Submerged Objects In A Stratified Environment”* examined the acoustic backscattering strength of stratified wake turbulence in the near wake of a spherical submerged body. Mid-latitude Atlantic and Arctic Ocean stratifications were modeled using

OpenFOAM. Her thesis suggests that a backscatter approach would be a viable alternative method to wake detection.

The Undersea Warfare Division, in conjunction with the Naval Postgraduate School, takes great pleasure and welcomes the opportunity to recognize the important contributions of LCDR Erika A. Fee by its award of the 2024 RADM Jack Jarabak Bronze Medal Award.

NDIA UWD 2024 Academic Speaker Award



Dr. Micah Clark
Chair, Academic Fellowship Committee



Jenny Roberts
Deputy Chair, Academic Fellowship Committee

The NDIA Undersea Warfare Division (UWD) established the Academic Fellowship Program in 1990 to provide financial aid to Ph.D. candidates at universities closely associated with the Navy’s undersea warfare community. The objective is to encourage outstanding science and engineering students specializing in fields pertinent to undersea warfare to present their research at our conferences. The student candidate pool is derived from the Navy’s University Affiliated Research Centers (UARCs), the Naval Postgraduate School (NPS), and other academic institutions. This fall, we are pleased to host four academic research contributors from these organizations presenting the topics described below.



Daniel Kustaborder is a graduate student at the Pennsylvania State University and an intern at Penn State University, Applied Research Laboratory (ARL). Mr. Kustaborder is currently working towards a Master's Degree in Mechanical Engineering through a fellowship with ARL. His research interests

include control systems, vehicle guidance and control, and dynamic system modeling. His presentation will discuss novel nonlinear control and stability analysis for slender body UUV attitude in transit. Simulation results of the controller on a mathematical model of the REMUS 100 UUV will also be presented.



Nathaniel M. Mack is a Research and Development Engineer at the Pennsylvania State University, Applied Research Laboratory, where he works on autonomous behavior in underwater systems. Mr. Mack is also a Ph.D. student at George Mason University, where he studies intelligent agents under uncertainty.

His presentation will discuss Environmentally Aware Intelligent Navigation (EAIN), an algorithm that plans routes for unmanned underwater vehicles in complex environments. EAIN is an online algorithm that runs onboard an operating

vehicle. It returns the shortest path along a waterway that achieves a series of objectives without exceeding a maximum permissible error or energy budget. EAIN has been successfully tested in-water and compares favorably in terms of resource utilization against standard planning domain definition language (PDDL) and integer programming formulations for similar problems.



Ira Morgan is a Program Manager at the University of Texas, Applied Research Laboratories, where he oversees programs focused on advanced oceanographic acoustic sensor systems. Mr. Morgan is also a Ph.D. student in Electrical & Computer Engineering at the University of Texas at Austin. His

presentation will discuss recent research combining modern acoustic data pre-processing pipelines with Automated Machine Learning (AutoML) frameworks to highlight methods for exploiting the growing model design space and transfer learning opportunities from the broader machine learning community for use in underwater acoustics applications. For example, the AutoML architecture search procedure can minimize model selection time and cost by

automatically and efficiently exploring a wide range of known model architecture designs.



Ian Y. Garrett is a Computer Engineering Ph.D. student at Virginia Tech, specializing in cybersecurity and artificial intelligence/machine learning (AI/ML). Ian's research interests include applications of AI/ML to offensive and defensive cybersecurity, security of machine

learning algorithms, embedded systems security, controls security, cybersecurity, wireless communications and network security, and cyber-physical systems security. His current research focus is on machine learning models to accurately predict encryption keys across multiple devices using device power expenditure. Ian's academic work is informed by his extensive experience as a U.S. Army Cyber Corp Officer and his industry roles in the defense sector, where he applies his research to real-world challenges. He holds a B.S. in Computer Science from the United States Military Academy at West Point and an M.S. in Computer Science from Johns Hopkins University.

Undersea Command, Control, Communications and Combat Systems Committee



CAPT Paul Rosbolt, USN (Ret)
Chairman

Dr. Bob Zarnich
Deputy Chairman

John Linderman
Warfighter Performance Session
Chairman

Greetings, All! Looking forward to another great Clambake (and getting out of the DC heat!!) We've got some great speakers lined up this time, including CAPT Mitch Mitchell, PEO IWS5, CAPT David Kuhn, PMW 770, CAPT (ret) Rich Arnold, PEO IWS5A, CAPT Jon Haase, PMS 408, and CAPT Kevin Moller of the AUKUS program office. As you will have seen from the agenda, most of the PM's will be in Dealey Center on Day 2, with AUKUS cleared presentations! It should be a great session. Now, a word from our sponsor, CAPT Mitchell:

Greetings Fellow Undersea Warriors,
The theme of this year's conference is: *Undersea Warfare: Delivering Decisive Combat Power*. So how do we deliver decisive combat power? The answer can be more complex than most people think, but I will urge you to remember that delivering capability continues to be a team sport. As we all

know, there are myriad stakeholders in this problem that can be generally grouped in three basic areas – Fleet, OPNAV (the Resource Sponsors), and the Acquisition Community. These groups intertwine themselves in several ways to figure out what capabilities are needed; vetting and resourcing them; and finally, developing, producing, and delivering them. Yes, this sounds like a lot of motherhood and apple pie, but sometimes it bears repeating as the years roll by and the workforce turns over.

As I write this, the success of Acoustic Rapid Commercial Off-the-Shelf (A-RCI) and the Advanced Processor Builds (APBs) it produced – and continues to this day – has crossed from the submarine community to the surface community and its concepts are being applied elsewhere. We now have Advanced Builds (AxB) – to wit, APBs and Advanced Capability Builds (ACBs). In the Undersea Warfare Command and Control community, we have Capability Drops (CDs) for our USW DSS builds. The advanced build / technology insertion pattern of delivery is well entrenched. It delivers capability quickly with most software builds on a two-year cycle. But now we are being asked to go faster; much faster. At the same time, in our mandate to go faster we **cannot** forget the imperative of delivering a **quality** product that Sailors can use effectively without having to worry about what workarounds to employ in

getting around system defects. Advances like Infrastructure as a Service (IaaS) and virtual machinery are showing incredible promise in various phases of testing. We now have virtual operator trainers (VOTs) in the schoolhouse that allow us to shift software builds to accommodate nearly any system the sailor will encounter when they reach their ship or boat.

Considering the ever more dangerous world in which we live today, advances such as these cannot come fast enough. And the processes we use to acquire these capabilities are being called upon to demonstrate the utmost flexibility. Budgeteers, shipbuilders, and acquisition specialists are all continuously looking for ways to make the acquisition process go faster. Conferences like 'The Clambake' offer a tremendous opportunity for government offices to interact with industry to solve these

issues. During this conference, you're going to hear nuggets from senior Navy leadership – discussions about threats and what is needed to keep pace with those threats and to maintain technological advantage. You're going to hear technical briefings from government program offices, academia, and industry with respect to ideas to solve the issues and get capability to the Fleet. My challenge to you is to listen closely and think hard about what you, your program office, or company can do to help deliver a high-quality product that our Sailors can take into harm's way with the highest degree of confidence. I look forward to seeing you and discussing these concerns.

Warmest regards,

Mitch

Undersea Mine Warfare Committee



Kevin Hagan

Chairman

Elliott Donald

Deputy Chairman

The Mine Warfare committee is looking forward to another excellent technical session this year, with speakers from academia, industry, R&D, acquisition, and the fleet. As we get ready for

Wednesday's session, the following is a brief update on Mine Warfare Community goings-on over the past twelve months.

One of the most significant events in U.S. Naval Mine Warfare since last year's conference is the fielding of the Mine Warfare Mission Package to the fleet. After decades of development, last spring the Navy was finally able to declare Initial Operating Capability.

The mission package includes airborne and surface systems, including the Airborne Laser Mine Detection System (ALMDS), the Airborne Mine Neutralization System (AMNS), and the Mine Countermeasures Unmanned Surface Vehicle (MCM USV) with its two current modular payloads: the Unmanned Influence Sweep System (UISS) and the AN/AQS-20C mine hunting sonar.

In April of this year, the first mission package was installed in USS Canberra (LCS 30). Canberra, along with the independence-class littoral combat ships USS Tulsa and USS Santa Barbara (and another yet to be named), are expected to deploy to their new home port of Bahrain this fiscal year as part of a new Middle East mine countermeasures force. Fielding of the mission package will allow the Navy to finally retire the remainder of its legacy Avenger-class ships, which were built in the 1980s and 1990s. In addition to four Bahrain-based ships, the Navy plans to embark the mission package on a further eleven Independence-class LCSs.

An enduring goal of the Navy's mine countermeasures program has been a "single sortie detect-to-engage" capability, which

combines the search, detection, identification and neutralization portions of a mine countermeasures mission on a single platform and a single "pass" through a minefield. The sea service was brought closer to this goal over the winter when the Barracuda mine neutralizer's technical data package was approved. Barracuda is an expendable, semi-autonomous unmanned underwater vehicle that locates and destroys bottom, near surface, and drifting mines. Equivalent in size to an A-size sonobuoy, once launched, it receives target coordinates through an acoustic communication data link, has an integrated camera and sonar to allow the human operator to confirm a target, and engages via a self-contained kill mechanism. Though the Navy hasn't made a final decision on a launch platform, the MCM USV is a likely candidate. Production of about 200 vehicles for contractor and Navy trials has been underway since May 2023, with Low-Rate Initial Production planned for FY2027.

Another long-term mine countermeasures effort has been development of more effective surf zone clearance, removing hazards from the beach up to 10 feet in water depth. The Joint Direct Attack Munition (JDAM) Assault Breaching System (ABS) or (JABS) program began in 2002 to do just that. The system combines 2,000-pound guided bombs and targeting data from the MINEnet Tactical lethality database and mission planning software. After 21 years of work the final test in a series of events to characterize JABS performance in operationally relevant scenarios was successfully conducted at Eglin Air Force Base's shallow water explosive test pond on September 20, 2023. JABS has been a collaborative effort between the Panama City and Indian Head divisions of the Naval Surface Warfare Center as well as Eglin Air Force Base.

The Navy continues to pursue new mining capabilities, with a solicitation released for the Mining Expendable Delivery Unmanned Submarine Asset (MEDUSA) last Fall. The system is expected to be similar to the MK 67 Submarine Launched

Mobile Mine, with a 21-inch diameter, long range, high payload placement accuracy, heavy payload capacity, and the ability to be impulse-launched from a torpedo tube. Internal development of the system began in FY2017, with initial prototyping in FY2021 and program start the following year. Source selection is expected soon, with the winning bidder to deliver four prototypes and supporting equipment by FY2026. Platform integration efforts are expected to start following Preliminary Design Review.

Mine warfare has rarely been more in the spotlight in recent history than in the past few years, with the danger and prevalence of Russian mines in the Black Sea becoming quickly apparent in the weeks following its 2022 invasion of Ukraine and, in the following weeks, reciprocal Ukrainian deployment of mines to protect its ports. As recently as last December, a Panamanian-flagged ship transiting to the Ukrainian port of Izmail struck a mine, causing it to lose speed and control and sparking a fire on the upper deck. Incidents such as this have prompted Türkiye, Romania and Bulgaria to launch a joint mine clearance force, the first major combined effort among allies since the start of the invasion. Though the three countries are the only NATO members with direct access to the Black Sea, the effort isn't being considered a NATO operation, as Türkiye opposes the presence of naval assets in the Black Sea from other NATO countries, including the U.S., arguing they could further fuel tensions in the region. The U.S. Navy is staying as engaged as it can, though, with Explosive Ordnance Disposal Mobile Unit 8 participating in NUSRET 2023, a Türkiye-led mine warfare exercise that took place last Fall in the northern Aegean Sea. The multilateral exercise focused on the use of unmanned underwater vehicles, shallow water search, and interoperability among the staffs of Explosive Ordnance Disposal units from fifteen NATO and partner countries and included NATO's Standing Mine Countermeasures Task Group-2.

Though the current mine warfare focus is on the Black Sea, the U.S. Navy and its allies remain engaged in the Pacific. Last October, the U.S., Korea and thirteen other nations participated



An unmanned surface vehicle is craned aboard the Independence-variant littoral combat ship USS Canberra (LCS 30), as a part of the first embarkation of the Mine Countermeasures (MCM) mission package, April 23, 2024. (U.S. Navy photo by Mass Communication Specialist 1st Class Vance Hand)

in the United Nations Command Naval Component Command Mine Countermeasures Symposium and the Republic of Korea Navy Multi-National Mine Warfare Exercise (MNMIWEX). The three-day symposium included presentations from participating navies on autonomous mine detection and clearance, while MNMIWEX, which is part of an annual series of exercises hosted by South Korea, saw participants working together to clear a safe route for ships through a simulated minefield. South Korea and the U.S. Navy also participated in bi-lateral training this Spring, involving nine ships and four helicopters. Included in the surface force for the first time was the expeditionary sea base, USS Miguel Keith (ESB 5). The 785-foot Keith provided the floating helicopter base, as well as other support to mine countermeasures operations.

As always, I encourage everyone, whether in academia, industry or government, to keep lines of communication open, constantly work to understand and close capability gaps, and ensure we deliver the very best to our warfighters.

Undersea Warfare Vehicles Committee



Chuck Fralick
Chairman

On the eve of the first ever joint NDIA Undersea Warfare Conference with our Australian and United Kingdom allies, we can reflect on the monumental changes occurring in the navies of all three countries and the drive to achieve unprecedented

lethality and interoperability in the undersea domain.

Recent sea changes in the undersea enterprise include the exponential growth in uncrewed system development efforts and the desire for high-volume, low-cost systems to augment more exquisite systems. These departures from more traditional acquisitions demand constraints on development time, cost, and motivate less demanding performance specifications for individual vehicle systems. In short, speed to fleet, volume, and minimum viable products.

While these changes may seem to suggest compromises in vehicle performance, they more likely provide opportunities

for collaborative autonomy and the 1+1=3 synergies, technical innovation, new production methods, and multi-domain operations. I believe this trend will continue in the future as exquisite platforms become more and more expensive and will lead to a period of creativity in the undersea domain that we have not seen since early in the Cold War.

Among many excellent topics in Vehicles this fall, we see a

return of presentations on submarine platform technologies, an unusual submarine weapon concept, UUV technology trends, and a slate of Navy and DARPA program manager presentations.

An exciting time in undersea warfare vehicles technology development!

Undersea Warfare Aviation Committee



Glen Sharpe
Committee Chairman

Bob Kanyuk
Deputy Chairman

CAPT Dennis Lloyd, USN
Navy Liaison

Let me start by welcoming everyone who is new to NDIA UWD and those who have

been long term members currently contributing to the undersea warfare battlespace back to Groton. There is much going on in our domain, and as a Navy and Industrial Base community we have to keep pace with threats all around the globe.

We have a session of diverse experts from government, industry and academia who will share their expertise, plans and results of their efforts to address these global threats. You can expect to hear about and network with those who have acquired, researched, developed the technologies to achieve Undersea Overmatch.

I want to thank you for supporting the Aviation ASW committee and look forward to the relationships we will build together and improved capabilities we can assist each other with in support of our Sailors. Below is a public domain significant announcement for change of command in Program Executive Office, Air Anti-submarine Warfare, Assault, and Special Mission Programs (PEO(A)) within the Aviation Undersea Warfare domain.

PEO(A) Welcomes Walsh as New Lead; Kurtz Retires after 40 Years of Government Service

[NAVAIR \(Navy.mil\)](http://NAVAIR.Navy.mil)

Naval Air Systems Command, Patuxent River, MD

Program Executive Office, Air Anti-submarine Warfare, Assault, and Special Mission Programs (PEO(A)) welcomed its new program executive officer, Brig. Gen. David Walsh, in a change of command ceremony on June 27. Gary Kurtz, the outgoing PEO(A) executive officer, retired from government service after 40 years with Naval Air Systems Command (NAVAIR) and Naval Air Warfare Center, Aircraft Division (NAWCAD).

The change of command ceremony was presided over by Vice Adm. Francis Morley, Principal Military Deputy Assistant Secretary

of the Navy for Research, Development and Acquisition. In his remarks Morley stated, "To put it simply, the Navy and Marine Corps doesn't work without the products [that PEO(A) owns] and the work that this family does each and every day. Thank you very much for [the work done] under Gary's leadership and vision."

Kurtz served as the Program Executive Officer (PEO) for PEO(A) from 2022-2024, overseeing 10 program management offices and the acquisition and total life cycle support for a diverse range of products and aircraft. His professional awards include the Navy Certificate of Acquisition Excellence in 1998, Navy Meritorious Civilian Service Awards in 2000 and 2004, and the Coast Guard Civilian Commendation Medal in 2019.

"Over my 40 years of government service, I have been honored to work with the best and brightest. These last few years in my role as PEO(A) have been nothing short of that same level of professionalism and excellence. I can say with confidence that I can vouch and know why this portfolio is called 'The A Team,'" said Kurtz.

Kurtz led the PEO(A) teams to numerous program awards to include six NAVAIR Commanders Awards for Acquisition and Business Excellence in 2023.

"This PEO is a very dynamic, challenging and rewarding one. We have been in a full sprint – literally and figuratively – with one challenge after another. But, despite the challenges, we have come out stronger and more aligned to better assist our warfighters here and around the world when it matters most," said Kurtz.

Kurtz turned over the program executive office to Walsh in a traditional Marine Corps ceremony surrounded by family, friends, colleagues, executives, and industry partners.

"We have a generous portfolio in PEO(A): naval rotorcraft, fixed wing aircraft, sonobuoys, and advanced maritime technologies. No matter the type of aircraft, capability, or mission requirements, this 'A Team' has always led the way. It's been a true honor to work alongside so many amazing professionals and to have learned from them, as well," said Kurtz. "As I take my last steps across this platform as PEO(A) and step away from all the amazing people, I know I am handing this PEO over to an outstanding leader with a wealth of experience best suited for the future."

Before the PEO was officially transferred, Morley added, "Gary, [you have had] an incredible career and amazing career, and I'm excited

to see you go out on such a high note. You're one of the few people in or out of uniform that's been entrusted with the command of multiple PEOs. It's a testament to your professionalism, dedication and devotion, to the Navy, Marine Corps and all their missions."

Walsh was commissioned into the Marine Corps in August 1992 after graduating from the University of Virginia. He reported to Naval Air Station Pensacola for flight training and was designated a naval aviator in February 1995. He has accumulated over 2,500 flight hours in more than 30 types of aircraft.

Walsh is returning to NAVAIR after spending the last two years as commander of Marine Corps Systems Command. Prior to that command, he was the acting PEO for Land Systems in 2022 and Military Assistant to the Assistant Secretary of the Navy for Research, Development and Acquisition in 2021. Prior to that, he served as the program manager for NAVAIR's Marine Light / Attack Helicopter Program Office (PMA-276).

"The challenge I have coming in is to build upon the success [left by Gary] in PEO(A)," said Walsh. "You guys have done a lot

of great work over the years and we have a great team."

Walsh thanked his family and mentors who helped him throughout his career. He stressed the importance of people and delivering the capabilities to the warfighter in this current, challenging environment. Walsh called upon his newly acquired team to respond to the challenges with disciplined program execution, strengthening partnerships and focusing on people.

"Never in our lifetime has there been such a sense of urgency to make sure our Marines and Sailors get the gear that they need. I challenge us to be bold, think critically, be aggressive, do what we need to do to make sure our warfighters get what they need every day. We owe it to them," said Walsh.

PEO(A) provides fleet capability and capacity, supporting development and sustainment of Navy and Marine Corps helicopters, special mission aircraft and aviation anti-submarine warfare equipment and aircraft. PEO(A) comprises 10 major program office.

Undersea Warfare Sensors Committee



Joseph Cuschieri
Chairman

The fall conference for the NDIA USW Division will be back to its "almost" regular format after the changes made for the Spring Conference. The reason for being "almost" is because there are a couple of changes/additions that

are being implemented. The first is the participation of AUKUS during Tuesday's Plenaries. In the Dealey Center auditorium you may therefore see attendees from Australia and the UK. During the networking events you may bump into one of these attendees and we want to make them feel welcomed and part of the team. You may also end up having a conversation with one of these participants from these other countries. This is considered a positive in the sense that there may be new opportunities that arise because of the additional participation of AUKUS allies. However, it is up to each one of us to follow our company policies when talking to foreign allies.

The second change is the program for the second day of the conference, Wednesday, which traditionally has been the day for parallel technical sessions. There will still be parallel technical presentations, but a new track will be added which will be held in the Dealey Center auditorium and be open to the AUKUS participants. This additional track will include presentations from select PMs and all the Office of Naval Intelligence (ONI) presentations. The other parallel tracks will be what you all are familiar with from past fall conferences, where presentations from each of the Technical Committees will be briefed.

Undersea Sensors Technical Committee presentations will not be in the Dealey Center auditorium this year, please refer to your programs for the technical session location. We have a full day of very strong and interesting presentations which align with the theme of the Conference "**Undersea Warfare: Delivering Decisive Combat Power.**" On Wednesday, the day will kick off with a presentation from the Naval Post-Graduate School (NPG) focused on a new sensing approach for the arctic, replacing the traditional or legacy manual impact excitation sources with modern coherent broadband sources with the associated benefit of better knowledge of the form of the excitation spectrum and thus leveraging modern signal processing approaches for improved results. Following the kickoff presentation, we have three presentations from our regular Undersea Sensors Technical Committee contributors. Two of the presentations are by PMS 485, one that outlines the continued development of on-demand Deployable Surveillance Systems (DSS) capabilities and the other discusses the future development plan for mobile surveillance systems and SURTASS. The next presentation is from DARPA on the Banyan program – marine environmental monitoring using opto-acoustic sensors.

Following the first networking break, we have a presentation from the IWS5A Director of Advanced Development for Undersea Systems that will provide an update on recent developments. This presentation will be followed by two presentations from Office of Naval Research (ONR) on their efforts in the ASW arena. We have not had many ONR presentations recently so these two presentations are bound to be very interesting and informative. After lunch we switch to some presentations from industry.

One presentation by Alidade Inc. is on recent operational data from real-world events. This is followed by a presentation from Boston Fusion on the application of AI for target recognition and condition-based maintenance to improve operational availability. The two industry presentations are followed by a presentation by Johns Hopkins University Applied Physics Laboratory (JHU/APL) on advanced sensors and a presentation by Naval Research Laboratory (NRL) on the use of non-acoustic signatures to track small submersibles.

Following the last of the networking breaks of the day, we end strong with three presentations by Applied Research Laboratory University of Texas (ARL/UT), Sandia National Labs and Massachusetts Institute of Technology (MIT) Lincoln Labs, focused on machine learning, automatic target detection and novel sensing technologies. The presentation by ARL/UT has been submitted to the Academic Fellowship and I strongly encourage you to support this presentation by your attendance and support our young and upcoming talent in USW.

Conference Chair’s Message



Eric Irwin
Chairman



Robert Dunn
Co-Chairman, Fall Conference

The fall conference theme, "Undersea Warfare: Delivering Decisive Combat Power" focuses on maintaining and maximizing present undersea warfare capabilities and readiness, while designing and fielding the undersea warfare systems of the future. This year’s outstanding group of plenary speakers represents the full spectrum of undersea warfare expertise to include AUKUS partners and USSOCOM. The plenary session will include the following speakers:

- Director of the Naval Nuclear Propulsion Program – ADM William Houston, USN
- Commander Naval Submarine Forces – VADM Robert "Rob" Gaucher, USN
- Vice Commander, USSOCOM – Lieutenant General Francis L. Donovan, USMC
- Program Executive Officer, Undersea Warfare Systems – RDML Douglas Adams, USN
- Program Executive Office, Attack Submarines – RDML Jonathon Rucker, USN

- Program Executive Officer, Strategic Submarines, Executive Director – Dr Matthew Sermon
- Naval Undersea Warfare Center, Newport Technical Director – Marie Bussiere
- Chief of Naval Research – Dr. Tom Drake
- USD (I&S), Deputy Director of Defense Intelligence for Operational Support & International Partnerships – Andrew Richardson
- Director, Undersea Warfare Division, Office of the Chief of Naval Operations (N97) – RADM Mark Behning, USN
- AUKUS PANEL
 - Panel Moderator – Alan Lytle, PhD, Chairman, Undersea Warfare Division, NDIA
 - UK: CDRE Marcus Rose, Deputy Director for Underwater Battlespace
 - AUS: CDRE Michael Jacobson, Director General Submarines
 - US: Jose M. Miranda, SES Director, Technology Security and Technology Programs Directorate, Navy International Programs Office (NIPO)

Conference attendance provides you the opportunity to gain insight into the challenges and capability gaps that the Navy faces across the entire spectrum of the undersea domain. Take advantage of this opportunity to hear our Defense and Navy leader’s views on the issues confronting the Navy-industry-academia team as we navigate the waters of an uncertain future that will present new challenges to sustaining our undersea dominance.

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