Conference Recap: AOC EW Capability Gaps & Enabling Technologies 2024

By Brandi K. Hughes, NSWC Crane

Naval Surface Warfare Center, Crane Division (NSWC Crane) co-hosted the Association of Old Crows (AOC) annual conference on June 25-27. It aimed to address challenges and advance national leadership in electromagnetic warfare (EW) and electromagnetic spectrum operations (EMSO). Department of Defense (DOD) leadership has expressed the need to get product capabilities to the fleet much faster, and the AOC conference is an opportunity to bring together key stakeholders from academia, industry and government to discuss those challenges.

The Navy’s EA-18G fleet will soon transition from the ALQ-99 Tactical Jamming System to the ALQ-249 Next-Generation Jammer

(above). (US Navy photo)

“In the evolving battlespace, capability must get to the fleet faster. We know this because not only are we hearing this from the fleet, but we are hearing this from the most Senior DOD leadership as well,” said Andrew Martin, AOC event coordinator and Chief Strategist of Crane’s Electromagnetic Warfare Department. “This year’s excellent attendance by Joint Service Partners, to me, really reflects the ‘Team Attitude’ that the Electronic Warfare community has.”

The experts covered several critical focus areas at the conference, including shortening the timeline to field advanced EMSO capabilities to the warfighter, enhancing force-level EW , testing emerging technologies in EW and achieving an enduring global advantage in EMSO. These topics allowed insight and discussion on strategies and innovations to accelerate the deployment of cutting-edge EW systems and to explore streamlined processes and collaborative efforts that can reduce development and implementation time.

“Rapid advancements in technology are crucial in closing the gaps in Electromagnetic Warfare,” said Dr. Angela Lewis (SES), Technical Director at NSWC Crane. “At Crane, we recognize the imperative to innovate swiftly, and our dedicated team of experts work tirelessly to provide cutting-edge solutions that ensure our defense systems stay ahead of emerging threats. The pace at which we evolve our combat systems directly correlates to our ability to maintain strategic superiority in spectrum operations, with the ultimate goal of ensuring the safety of our warfighters.”

The US Navy’s submarine fleet relies on the BLQ-10 ESM system for situational awareness in the EMS. (US Navy photo)

The conference was an opportunity to highlight the latest technological advancements in the EW and EMSO domains and to present current research and development efforts from academia and industry partners that are poised to transform future EW capabilities.

“When we talk about how to accelerate EMSO capabilities, we

believe that the increased focus on several things like Developmental Test, Evaluation, and Experimentation; Mission Engineering, Mission Integration; Mission Analysis; and Integrated Capabilities are key accelerators to getting some of the leading-edge capabilities that we also talk about at this conference, into the hands of the warfighter," said Martin. "All these mission-focused functions ensure the requirement the sailor has stated isn't lost in translation as it goes through the Pentagon, the program offices, to the engineers and then back to the fleet at the other side. Mission Engineering ensures our EW requirements are planted in the mission first and foremost."

The AOC conference serves as a platform for professionals from diverse fields to converge and share their expertise. The interdisciplinary collaboration fostered at this event enables tackling the complex challenges associated with electromagnetic warfare. With NSWC Crane's research and development proficiency and surrounding partnerships with academia and industry, hosting the AOC conference near Crane was ideal.

Brian Hinkley, AOC President said, "Hosting this conference is a prime example of NSWC Crane's over 80-year coveted history of commitment and connection to the warfighter. Crane's Spectrum Warfare Systems Department has been directly involved for decades in life-saving EW capability in the maritime domain against drones, UAVs and anti-ship missiles, in the airborne domain providing aviation electronic attack enhancements and in the land domain fighting radio-controlled improvised explosive devices. Crane continues to lead in mastering emerging technologies to give our warfighters a decisive tactical advantage in the EMS battlespace now and in the future."

Martin said that by facilitating open dialogue and knowledge exchange, the conference focused on driving forward-thinking solutions and foster innovation. "At Crane, we work well

across the Force Level enterprise and as technical folks supporting the Navy, we are exposed to both gaps that sailors have, but also cutting-edge technology that give proper engineering Test & Evaluation or further developmental input. What we are talking about here today at the AOC conference is what that looks like; working together, collaborating, challenging each other, and bringing forward our best to support the fleet and the joint forces," said Martin.

Hickley added, "Crane's EW Capabilities and Enabling Technologies Conference has been the annual 'must attend' Maritime EW conference for 16 years running. It consistently brings together experts from all four pillars of a robust Electromagnetic Spectrum Operations (EMSO) community: academia, industry, defense and government to ensure that experts in every field with perspectives from early research and development through rigorous test and evaluation ultimately to operational execution where requirements are generated. The conference enables these experts to collaborate on a common passion."

The Navy is upgrading the SLQ-32 EW system on its surface combatants. Above, the USS Pinckney is fitted with the SLQ-32(V)7 (seen below the bridge and between the radar arrays). (US Navy photo)

As the nature of modern warfare continues to evolve, maintaining superiority in the EMS will continue to be increasingly crucial.

“This conference provided for the opportunity the EMSO community to collaborate and discuss capability gaps and technology that will close those gaps,” said CAPT Jesse Mink, Major Program Manager, PEO IWS 2.0 and 2024 AOC conference keynote speaker. “We also discussed the real-world events and how the Surface Navy EW capability is performing at sea. I’m pleased with the ability to collaborate with everybody and understand how important it is to dominate in the EMS. What I have learned in my job is that people only know what you tell them, so forums like this allow for the ability to tell the story and what work you are doing and let people know there

are efforts happening right now that are advancing our capabilities."

The AOC conference was primed to play a significant role in shaping the future of EMSO, ensuring that national leadership remains at the forefront of this critical domain. Through the collective efforts of academia, industry, and government professionals, this event promises to contribute significantly to the advancement of EW capabilities and the strategic advantage of the nation's defense forces.

"We need industry's help to continue to iterate and to continue to be all-in in this warfighting space because that is where the wizardry is happening. That's where the new ideas are coming from. And my job is to take those ideas and make them real and put them in the hands of sailors for them to go and use them to go fight and come home safely to their families. That's the whole objective," said Captain Mink.

Andrew Martin said, "I hope all the attendees at this AOC conference are asking themselves 'What can I do as a team member attending this AOC conference to get these capabilities where it matters most and make sure it functions as intended when it gets there?' I think that is the key takeaway this week."

About NSWC Crane

NSWC Crane is a naval laboratory and a field activity of Naval Sea Systems Command (NAVSEA) with mission areas in Expeditionary Warfare, Strategic Missions and Electromagnetic Warfare. The warfare center is responsible for multi-domain, multi- spectral, full life cycle support of technologies and systems enhancing capability to today's Warfighter.

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