

NDIA



2023

UNDERSEA WARFARE

FALL CONFERENCE

Undersea Warfare: The Critical Enabler to Integrated Deterrence

Conference Co-Sponsorship By: Naval Undersea Warfare Center Division, Newport

September 18 – 20, 2023 | Groton, CT | [NDIA.org/USW](https://ndia.org/USW)



Agenda

MONDAY, SEPTEMBER 18

3:00 – 7:00 pm **Registration**
MYSTIC MARRIOTT HOTEL & SPA - MYSTIC FOYER

GENERAL DYNAMICS
Mission Systems

5:00 – 6:30 pm **Networking Reception**
MYSTIC MARRIOTT HOTEL & SPA - MYSTIC BALLROOM

NORTHROP GRUMMAN

TUESDAY, SEPTEMBER 19

7:00 am – 5:00 pm **Registration**
DEALEY CENTER AUDITORIUM

GENERAL DYNAMICS
Mission Systems

7:00 – 8:00 am **Networking Breakfast**
OUTSIDE PLAZA

 **L3HARRIS™**

8:00 – 8:15 am **Welcome and Opening Remarks**
DEALEY CENTER AUDITORIUM

Alan Lytle, PhD
Chairman, Undersea Warfare Division, NDIA
Vice President, Strategy & Mission Solutions, Northrop Grumman Corporation

Jennifer Stewart
Executive Vice President, Policy & Strategy, NDIA

CAPT Eric Irwin, USN (Ret)
Chairman, Undersea Warfare Division Fall Conference
Warfare Analysis Program Lead, General Dynamics Electric Boat Corporation

8:15 – 8:45 am **Presentation**
DEALEY CENTER AUDITORIUM

ADM Frank Caldwell, USN
Director, Naval Nuclear Propulsion Program

8:45 – 9:15 am **Presentation**
DEALEY CENTER AUDITORIUM

VADM William Houston, USN
Commander, Naval Submarine Forces

9:15 – 9:45 am **Presentation**
DEALEY CENTER AUDITORIUM

VADM Richard Correll, USN
Deputy Commander, U.S. Strategic Command

9:45 – 10:15 am **Networking Break**
OUTSIDE PLAZA

10:15 – 10:45 am **Presentation**
DEALEY CENTER AUDITORIUM

CAPT Drew Miller, USN
Commander, Undersea Warfighting Development Center

10:45 – 11:15 am **Presentation**
DEALEY CENTER AUDITORIUM

Scott Bray
Deputy Director, Naval Intelligence, (OPNAV N2N6C)

11:15 – 11:45 am **Presentation**
DEALEY CENTER AUDITORIUM

Dr. Martin Irvine
Executive Director, Naval Surface Warfare Center and Naval Undersea Warfare Center

11:45 am – 12:00 pm **Awards Ceremony**
DEALEY CENTER AUDITORIUM

Pierre Corriveau
Awards Chair, Undersea Warfare Division, NDIA

12:00 – 1:15 pm **Networking Lunch**
BASE GYMNASIUM

 **TELEDYNE**
Everywhereyoulook™

1:15 – 1:45 pm **Presentation**
DEALEY CENTER AUDITORIUM

RADM Scott Pappano, USN
Program Executive Officer, Strategic Submarines

1:45 – 2:15 pm **Presentation**
DEALEY CENTER AUDITORIUM

Stefanie Link
Executive Director, In-service Submarines Program Executive Office, Attack Submarines (PEO SSN)

2:15 – 2:45 pm

Presentation

DEALEY CENTER AUDITORIUM

CAPT Todd Weeks, USN

Program Executive Officer, Undersea Warfare Systems

2:45 – 3:15 pm

Networking Break

OUTSIDE PLAZA

3:15 – 3:45 pm

Presentation

DEALEY CENTER AUDITORIUM

Dr. Matthew Sermon

Executive Director, Program Executive Office Strategic Submarines

Whitney Jones

Director, Submarine Industrial Base Program Executive Office Strategic Submarines (PEO SSBN)

3:45 – 4:15 pm

Presentation

DEALEY CENTER AUDITORIUM

Rob McHenry

Deputy Director, Defense Advanced Research Projects Agency

4:15 – 4:45 pm

Presentation

DEALEY CENTER AUDITORIUM

RDML Mark Behning, USN

Director, Undersea Warfare Division, Office of the Chief of Naval Operations (N97)

4:45 – 4:50 pm

Closing Remarks

DEALEY CENTER AUDITORIUM

CAPT Eric Irwin, USN (Ret)

Chairman, Undersea Warfare Division Fall Conference
Warfare Analysis Program Lead, General Dynamics Electric Boat Corporation

6:00 – 7:00 pm

Networking Reception

NORTH LAKE

Ticket Required

7:00 – 9:00 pm

Networking Clambake

NORTH LAKE

Ticket Required



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Technical Sessions

WEDNESDAY, SEPTEMBER 20

7:00 am **Registration**
DEALEY CENTER AUDITORIUM

GENERAL DYNAMICS
Mission Systems

7:00 am **Networking Breakfast**
DEALEY CENTER OUTSIDE PLAZA

 **L3HARRIS™**

	Aviation Systems Glen Sharpe, Session Chair	Mine Warfare Kevin Hagan, Session Chair	Undersea Sensors Joe Cuschieri, Session Chair
	Building 83 Room 318	Building 84 Room 106	Dealy Theater
8:00 am		1555621 Development of New Underwater Explosives and Warheads Daniela Wagus ONR George McDaniel Naval Surface Warfare Center Indian Head Division	1543531 DARPA Kraken Program Update Katherine Woolfe DARPA Michael Ott DARPA
8:30 am	NAVAIR PEO-Air ASW Programs Shawn Slade NAVAIR	1573573 Deep Neutralization Emily Medina ONR	1570612 PMS 485 Deployable Surveillance Systems Update Susan LaShomb PMS 485 Deployable Surveillance Systems
9:00 am		1559222 Mission-Level Modeling & Simulation of Mining Operations Nicholas Evans The Boeing Company, Inc. Caroline Stocking The Boeing Company, Inc.	1575195 IWS5 Sensor Systems Update George Arnold IWS 5

	Undersea Vehicles Chuck Fralick, Session Chair	Undersea Vehicles Dr. Brian McKeon, Session Chair	Combat Systems & Warfighter Performance CAPT Paul Rosbolt, USN (Ret), Session Chair	C4I Dr. Robert Zarnich, Session Chair
	Building 83 Room 317	Bledsoe Hall	Building 84 Room 104	Building 83 Room 319
8:00 am	1562196 Unmanned Maritime Systems (PMS 406) Program Update Djueno Searles PEO USC / PMS 406	1556393 DARPA Manta Ray Program Kyle Woerner DARPA	1556980 Warfighter Decision Centered Design Dr. Joseph Gabriel NUWC Division Newport Kevin Pushee NUWC Division Newport	1587195 PMW 770: Accelerating Undersea and Shore Communications CAPT Paul Seitz, USN Common Sub Marine Radio Room APM Ebony Williams PMW 770
8:30 am	1586768 PMS 415 Update Gene Severtson NAVSEA Alex Dube NAVSEA	1562362 Seafloor Bottom Node Rick Cox Leidos	1559563 Virtual Undersea Battlespace: Enabling the SUBFOR Wargaming and Experimentation Center (SFWEC) Michael Pelczarski NUWC Division Newport	1530205 Undersea C3: Command, Control, and Communications Dianne Egnor MITRE Andrew Dominijanni MITRE
9:00 am	1545983 DARPA Hunter Program Update Katherine Woolfe DARPA David Pfundstein DARPA	1547820 Target Strength Signature Comparisons Thomas Bowling NSWC Carderock Division Saliou Telly NSWC Carderock Division	1558995 High Power Microwave (HPM) Systems Nishita Mirchandani Syrnatec, Inc.	1576455 Undersea Constellation Communications Architecture Study William Craig NUWC Division Newport

9:30 am	<p>1555096</p> <p>Navy STP: Transition Innovative Technology to Deliver Warfighting Capabilities</p> <p>Donald Williamson ATSI</p>	<p>1573747</p> <p>MCM Capabilities and Vectors for Future Development</p> <p>Emily Waymire NSWC Panama City Division</p>	<p>1575337</p> <p>IUSS Mobile Surveillance System Future Capabilities and Opportunities</p> <p>Don Ringel NAVSEA PMS 485</p> <p>Cooke Rabon NAVSEA PMS 485/ JHU APL</p>
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<p>1567206</p> <p>Fighting Into the Bastions: Getting Noisier to Sustain the U.S. Undersea Advantage</p> <p>Timothy Walton Hudson Institute</p>	<p>1571984</p> <p>Stability Certification via Semidefinite Programming</p> <p>Austin Juhl Johns Hopkins University Applied Physics Laboratory</p>	<p>1573623</p> <p>Building Operational Trust in Deployed Autonomy Platforms</p> <p>Tristan Endsley The Charles Stark Draper Laboratory</p>	<p>1548322</p> <p>DARPA Timely Information for Maritime Engagements (TIMEly) Program Update</p> <p>Michael Ott DARPA</p> <p>Aaron Kofford DARPA</p>
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10:00 am **Networking Break**
DEALEY CENTER OUTSIDE PLAZA

10:30 am	<p>1576322</p> <p>Recent Breakthroughs in Air ASW Acoustic Automation</p> <p>Laurence Riddle Signals Systems Corporation</p>	<p>1573750</p> <p>Making Naval Mining Improvements a Reality</p> <p>Andrew Blair Naval Surface Warfare Center Panama City Division</p>	<p>1573183</p> <p>Wargaming the Future of Integrated Undersea Surveillance System (IUSS)</p> <p>Scott Simpkins JHU - APL</p> <p>Brendan Gotowka JHU - APL</p>
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<p>1554994</p> <p>The Application of Machine Learning to Enhance Torpedo Target Classification</p> <p>Jillian Green NUWC Division Newport</p>	<p>1555457</p> <p>Planning Unmanned Underwater Vehicle Motion to Improve Passive Bearing-Only Multi-Target Tracking</p> <p>James Turner U.S. Naval Research Laboratory</p>	<p>1539047</p> <p>IWS 5.0 Program Status & Plans</p> <p>Glenda Leon PEO IWS 5.0</p>	<p>1571831</p> <p>Enabling Operations Across the Air-Water Boundary – A Submarine Integration Perspective</p> <p>Michael Brawner GD Electric Boat</p>
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11:00 am	<p>585236</p> <p>Minimization of In-Band Interferers on Airborne Anti-Submarine System Performance</p> <p>Travis Cuprak RDA, Inc.</p> <p>Rob Kunz RDA, Inc.</p>	<p>1573304</p> <p>LCS Mission Modules Program Office (PMS 420) Update</p> <p>Ed Sujecki LCS Mission Modules Program Office (PMS 420)</p>	<p>1548490</p> <p>Demonstration of MIMO Active Sonar Capabilities</p> <p>Stephen Blackstock Applied Research Laboratories, University of Texas</p>
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<p>1553115</p> <p>AI/ML-Based State of Charge Prediction to Support Mission Planning of UUVs</p> <p>Alex Stimpson VTG</p>	<p>1556313</p> <p>Tetra Subsea Seabed Warfare Vehicle Providing Rapid Payload Capability</p> <p>Philip Anderson Oceaneering International</p>	<p>1575323</p> <p>IWS5 Combat Systems Update</p> <p>George Arnold IWS 5</p>	<p>1571131</p> <p>Non-Traditional Anti-Surface Engagement</p> <p>Alexander Cheij Johns Hopkins University Applied Physics Lab</p>
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11:30 am	<p>1572847</p> <p>Higher Data Rate and Improved Spectrally Efficient Telemetry Options for Sonobuoy and Maritime Line of Sight Radio Communications</p> <p>Howard Ebersman Ultra Maritime</p>	<p>1573309</p> <p>DARPA MIW Programs Update</p> <p>Kyle Woerner DARPA</p>	<p>1556438</p> <p>Advancing Contextual Classification for Passive Sonar</p> <p>Nathan Parrish Johns Hopkins University Applied Physics Lab</p>
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<p>1556321</p> <p>Naval Undersea Warfare Center (NUWC) Keyport Unmanned Underwater Vehicle (UUV) Razorback AI/ML and 3D Rendering Digital Twin</p> <p>John Sprague World Wide Technology</p> <p>Jason Craig World Wide Technology</p>	<p>1570261</p> <p>Toward UUV Obstacle & Hazard Avoidance in Forward Operating Areas</p> <p>David Malphurs NSWC Panama City Division</p> <p>Nicholas Palermo NSWC Panama City Division</p>	<p>1561918</p> <p>USN Multi-Static Active Roadmap for Surface Ships and Submarines</p> <p>Meg Stout PEO IWS 5.0</p>	<p>Potential Adversary #1 Unmanned System Developments</p> <p>ONI</p>
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12:00 pm **Networking Lunch**
BASE GYMNASIUM



1:00 pm	<p>1585020</p> <p>Advances in the Precision High Altitude Sonobuoy Emplacement (PHASE) Project</p> <p>Brian Montague SeaLandAire Technologies, Inc.</p>	<p>1574115</p> <p>Mine Warfare Programs Update</p> <p>Gary Jones Mine Warfare Program Office (PMS 495)</p>	<p>1570758</p> <p>Volumetric Low Frequency Broadband Synthetic Aperture Sonar for Deeply Buried Mines and Seabed Infrastructure</p> <p>Zachary Waters Naval Research Laboratory</p>
1:30 pm	<p>1555000</p> <p>Triton UAS Communications Gateway</p> <p>Greg Loegering Northrop Grumman</p> <p>Dave Smallwood Northrop Grumman</p>	<p>1557817</p> <p>Undersea Delivered Mines Development</p> <p>Abiodun Osho Mine Warfare Program Office, (PMS 495)</p>	<p>ACINT Update</p> <p>ONI</p>
2:00 pm	<p>1574857</p> <p>Aviation Systems</p> <p>Suresh Mirchandani BRYKA SKYSTOCKS, LLC</p> <p>Yash Mirchandani BRYKA SKYSTOCKS, LLC</p>	<p>1613180</p> <p>Angler</p> <p>Terry Miller Advanced Acoustic Concepts</p> <p>Jim Richardson Advanced Acoustic Concepts</p>	<p>1556465</p> <p>Sensors for Environmental Superiority</p> <p>Dr. Andrew Greene NUWC Division Newport</p>
2:30 pm	<p>1576866</p> <p>Advances in the Digital DIFAR Vertical Line Array (DDVLA) Sonobuoy</p> <p>Brian Montague SeaLandAire Technologies, Inc.</p>	<p>1613162</p> <p>SUBPAC MCM Update</p> <p>Neil Szanyi SUBPAC</p>	<p>1559417</p> <p>Unmanned Underwater Vehicle Sensor and C4I Solutions for Distributed Maritime Operations</p> <p>Marc Olivieri L3Harris Technologies</p> <p>Mike Smith L3Harris Technologies</p>

3:00 pm **Networking Break**
DEALEY CENTER OUTSIDE PLAZA

<p>1576539</p> <p>New Capability for Submarines</p> <p>Josh Peters Newport News Shipbuilding</p>	<p>1569962</p> <p>Developing the Next Generation Exercise Section for Undersea Vehicles</p> <p>Matthew Ruggieri Raytheon Technologies</p>	<p>1574821</p> <p>Advancing Neurocognitive Assessment in Underwater Environments Through Tablet-Based Technology</p> <p>Justin Handy Naval Submarine Medical Research Laboratory</p>	<p>1576566</p> <p>Submarine Non-Geostationary Orbit Satellite Communications Study</p> <p>Matthew Atwood NUWC Division Newport</p>
<p>1562058</p> <p>Deep and Near-Surface Performance Analysis of a Non-Body-of-Revolution Submersible With Large Pod Appendages</p> <p>Spencer Eves U.S. Naval Academy</p> <p>Jonathan Gibbs U.S. Naval Academy</p>	<p>1576037</p> <p>Submarine and UUV Integration</p> <p>Michael Pascucci HII-Newport News Shipbuilding</p> <p>Chuck Trabert HII-Newport News Shipbuilding</p>	<p>Potential Adversary #1 USW Tactics Update</p> <p>ONI</p>	<p>1575861</p> <p>Ekelund Range Simulator for Passive Target Motion Analysis (TMA) by UAS Robots</p> <p>Donald Brutzman Naval Postgraduate School (NPS)</p> <p>Christopher Cirullo Naval Information Warfare Center (NIWC) Pacific</p>
<p>1556086</p> <p>Effect of Coupled High Pressure Salt Water Absorption and Low Temperatures on the Mechanical Characteristics of Additively Manufactured Polymers</p> <p>Dr. James LeBlanc NUWC Center Division Newport</p>	<p>1568581</p> <p>Underwater Acoustic Options for Homing to a Target</p> <p>Bob Melvin Teledyne Marine</p> <p>Ken Scussel Teledyne Marine</p>	<p>Potential Adversary #2 USW Tactics Update</p> <p>ONI</p>	<p>1574760</p> <p>DEVSECOPS in Infrastructure - Creating Warfighting Advantage at the Speed of Relevance</p> <p>Kelly Jones Cisco Systems, Inc.</p>
<p>1572158</p> <p>Unmanned Vehicle Launch and Recovery Demonstrations from Horizontal Payload Tubes</p> <p>John Chapman Electric Boat Corp</p>	<p>1556379</p> <p>Experimental Measurements and Numerical Analysis to Support Corrosion Informed Design</p> <p>Steven Policastro U.S. Naval Research Laboratory</p>		<p>1552162</p> <p>Cybersecurity Academic Collaborations for USW Combat Systems</p> <p>Benjamin Drozdenko NUWC Center Division Newport</p>

3:30 pm	<p>Potential Adversary # 1 Submarine and USW Operations ONI</p>	<p>1573314 MCMGRU THREE's MHD Perspective CDR Mike Dalrymple, USN MCMGRU THREE</p>	<p>1553987 Detecting and Tracking Surface Ships Using Non-Traditional Processing of Forward Looking Sonar Data Richard Nielsen The Boeing Company</p>
4:00 pm	<p>Threats to Acquisition ONI</p>	<p>1558991 AI-MDCS Based Mine Warfare System Yash Mirchandani Neoskye, Inc.</p>	<p>1559165 Automated Torpedo Acoustic Classifier (ATAC) Sebastian Pascarelle In-Depth Engineering</p>
4:30 pm	<p>Threats to PNT ONI</p>	<p>1556534 Ongoing Naval Postgraduate School Research Efforts in Naval Mining LT Daniel Petersen, USN Naval Postgraduate School</p>	<p>1574707 The Multi Sensor Sonobuoy and Its Promise for ASW Jeffrey Ridgway Information Systems Laboratories, Inc. Jameson Bergin Information Systems Laboratories, Inc.</p>

<p>1571381 Sea Water Inflated Launch and Recovery System (SWI-LARS) Robert Lohe Phoenix International Holdings, Inc. Mitchell Loyd Phoenix International Holdings, Inc.</p>	<p>1569714 Project Mazu - Subsea Pulsed Power, High Voltage Discharge, and Plasma Study Nate Gonzales General Dynamics Mission Systems</p>	<p>1568242 Risk Management Framework (RMF) to Continuous ATO Jim Pietrocini KBR</p>	<p>1571832 Understanding the Future of Memory: Understanding the Significance of Compute Express Link Brian Kornish Accipiter Systems</p>
<p>1534252 Hybrid Drone: The World's Only Fully Multi-Modal (Maritime, Air and Land) UxS Scott Kempshall HyALTA Aeronautics, Inc.</p>	<p>1562092 Maneuvering Analysis of a Non-Body-of-Revolution Submersible with Large Pod Appendages Allison Kalinowski U.S. Naval Academy Jonathan Gibbs U.S. Naval Academy</p>	<p>1559002 Latency and Processing Power Optimization Through Neuromorphic Signal and Data Processing Approaches Yash Mirchandani Neoskye, Inc.</p>	<p>1540438 Controlling Your Destiny: Using State of the Practice Digital Electronic Systems Engineering To Develop DMSMS Solutions That Are Affordable to Sustain, Agile to Modernize, AND the Navy Owns the Data James Chew Cadence Design Systems Steve Carlson Cadence Design Systems</p>
<p>1570243 Non-Traditional Signature Susceptibility Characterization Anne Fullerton NSWC Carderock Division Keegan Delaney NSWC Carderock Division</p>	<p>1578657 An Apparent Impedance Approach to Advancing Corrosion Protection System Control Matthew Strom U.S. Naval Research Laboratory Caelen Clark U.S. Naval Research Laboratory</p>	<p>1571086 Human Centered Engineering Early in Systems Development: A Case Study of Telerobotic Manipulation Kelly Sprehn Draper Meredith Pitchon Draper</p>	<p>1540508 Better, Faster, Cheaper: Lowering Total Life Cycle Costs While Reducing Development Costs and Schedule Adam Sherer Cadence Design Systems Dr. Yadu Zambre Air Force Research Laboratory</p>

5:00 pm **Conference Adjourns**