**2019**

# UNDERSEA WARFARE TECHNOLOGY

## SPRING CONFERENCE

A Spectrum of Effects through Integrated Security
and Operational Cross-Domain Systems

March 25 – 27  |  San Diego, CA  |  NDIA.org/USW

# PLENARY AGENDA

## MONDAY, MARCH 25

**4:00 – 6:00 pm**  **REGISTRATION**
GARDEN TERRACE, SHERATON SAN DIEGO HOTEL AND MARINA BAY TOWER

**5:00 – 6:00 pm**  **NETWORKING RECEPTION**
GARDEN TERRACE, SHERATON SAN DIEGO HOTEL AND MARINA BAY TOWER

## TUESDAY, MARCH 26

**7:00 am – 5:00 pm**  **REGISTRATION**
LOBBY

**7:00 – 8:00 am**  **NETWORKING BREAKFAST**
LAWN

**8:00 – 8:15 am**  **CALL TO ORDER AND WELCOME**
SKYLINE ROOM

**Mike Tucker**
NDIA Undersea Warfare Division Chair

**Gen Hawk Carlisle, USAF (Ret)**
President & CEO, NDIA

**OPENING REMARKS**
**Donald McCormack**
Executive Director, NAVSEA Warfare Centers

**INTRODUCTION OF SPEAKERS**
**John Holmes**
NDIA Undersea Warfare Division Spring Conference Chair

**8:15 – 8:45 am**  **RADM John Tammen, USN**
Director, Undersea Warfare Division, (OPNAV N97)

**8:45 – 9:15 am**  **RADM Lorin Selby, USN**
Chief Engineer and Deputy Commander, Ship Design, Integration and Engineering, NAVSEA

**9:15 – 9:45 am**  **John W.R. Pope**
Executive Director, Program Executive Office, Command, Control, Communications, Computers, and Intelligence

**9:45 – 10:15 am**  **NETWORKING BREAK**
LAWN

**10:15 – 10:45 am**  **RDML Blake Converse, USN**
Commander, Submarine Force, U.S. Pacific Fleet

**10:45 – 11:15 am**  **CAPT Stephen Mack, USN**
Commander, Submarine Development Five

**11:15 – 11:45 am**  **Jerry Ferguson**
Deputy Commander, Undersea Warfare Development Center

**11:45 – 12:00 pm**  **AWARDS CEREMONY**
SKYLINE ROOM

**Pierre Corriveau**
Undersea Warfare Division Awards Chair

**12:00 – 1:00 pm**  **NETWORKING LUNCH**
LAWN

**1:00 pm**  **INTRODUCTION OF SPEAKERS**
**Andy Wilde**
NDIA Undersea Warfare Division Spring Conference Co-Chair

**1:00 – 1:30 pm**  **RDML Jesse Wilson, USN**
Commander, Naval Surface Force Atlantic

**1:30 – 2:00 pm**  **RDML David Welch**
Commander, Naval Surface and Mine Warfighting Development Center

**2:00 – 2:30 pm**  **Andrew Richardson**
Deputy Commander, Office of Naval Intelligence

**2:30 – 3:00 pm**  **NETWORKING BREAK**
LAWN

**3:00 – 3:30 pm**  **CAPT Pete Small, USN**
Program Executive Office, Unmanned and Small Combatants, PMS-406

**3:30 – 4:00 pm**  **CAPT Douglas Belvin, USN**
Program Executive Office, Air ASW, Assault and Special Mission Programs

**4:00 – 4:30 pm**  **Donald McCormack**
Executive Director, NAVSEA Warfare Centers

**4:30 pm**  **CLOSING REMARKS**
SKYLINE ROOM

**Mike Tucker**
NDIA Undersea Warfare Division Chair

**4:30 – 6:00 pm**  **NETWORKING RECEPTION**
LAWN

The NDIA has a policy of strict compliance with federal and state antitrust laws. The antitrust laws prohibit competitors from engaging in actions that could result in an unreasonable restraint of trade. Consequently, NDIA members must avoid discussing certain topics when they are together at formal association membership, board, committee, and other meetings and in informal contacts with other industry members: prices, fees, rates, profit margins, or other terms or conditions of sale (including allowances, credit terms, and warranties); allocation of markets or customers or division of territories; or refusals to deal with or boycotts of suppliers, customers or other third parties, or topics that may lead participants not to deal with a particular supplier, customer or third party.

| | 7:00 – 8:00 AM NETWORKING BREAKFAST | | | | 7:00 – 8:00 AM NETWORKING BREAKFAST | | |
|---|---|---|---|---|---|---|---|
| | **C4I** Paul Rosbolt Session Chair | **Combat Systems / Warfighter Performance** Dr. Bob Zarnich Session Chair | **Mine Warfare** Jon Tobias Session Chair | | **Undersea Sensors** Mike Janik Session Chair | **Undersea Vehicles** Tom Ruzic Session Chair | **Aviation USW** Glen Sharpe Session Chair |
| | Nimitz Room | Harbor Lounge | Pt. Loma Room | | Skyline A | San Diego Room | Skyline B |
| **8:00 am** | 21963 Undersea Communications & Integration Program Office Overview **CAPT Michael Boone, USN** PMW-770 | ONI-7 USW Portfolio **TAC-12** ONI | 22029 Technology Advancements Supporting Semi-Autonomous Mine Neutralization **Angela Thayer** Raytheon | | 22033 Remote Persistent ISR & C3 **Jenny Roberts** OPNAV N97 | 21966 Department of Navy Strategic Roadmap and the Future of Unmanned and Autonomous Systems **Reid McAllister** NSWC-Carderock | 22012 Air ASW Mission Analysis **CAPT Douglas Belvin, USN** NAVAIR PMA-264 |
| **8:30 am** | 22041 Data Sensors and Artificial Intelligence in the Undersea Domain **Jason Craig** World Wide Technology | | 22079 MCM Transition **CAPT Ron Toland, USN** SMWDC | | 21974 PMS 485's Deployable Surveillance System Update **Susan LaShomb** PMS 485 PAPM Deployable Surveillance Systems (DSS) | 22092 Undersea Weapons, Program Plans Update **CAPT Steven Harrison, USN** PMS-404 | 22051 Engineering Analysis of Sonobuoy Performance **Dr. Lauren Sturdy** NAWCAD |
| **9:00 am** | ONI 8 Cyber Threats to Submarines **TAC-57** ONI | 22043 PEO IWS (IWS 5.0) **Lee Agin** PEO IWS | 22070 Multi-Shot Mine Neutralization and the UK/French Maritime Mine Countermeasures Project **Jon Kaufmann** Saab Defense & Security | | 21959 Managing IUSS Mobile Surveillance System Capabilities **Donald Ringel** Maritime Surveillance Systems (PMS-485) | 22032 TSEP Block VI VIRGINIA **Dave Nagy** OPNAV N97 | 22018 High Duty Cycle Architecture Study **Dr. Larry Riddle** Signal Systems Corporation |
| **9:30 am** | 22042 Cybersecurity Framework for Undersea Warfare **John Sprague** World Wide Technology | 21926 Meeting the Commander's Intent: Rapid Capability Development for Future Submarine Payloads **John Bowdren** NUWC-Newport | 22082 Expeditionary Mine Countermeasures - Solving EOD Problems in the Water Column **CDR Robert Wheat, USN** EOD Mobile Unit 1 | | 21945 Improved Signal Processing for SURTASS Active Clutter Reduction **Rony Alaghbar** L3 Adaptive Methods | 21808 Submarine Escape and Rescue **Steve Thoresen** PMS-391 | 22020 DICASS Automation Development **Dr. Larry Riddle** Signal Systems Corporation |
| **10:00 am** | NETWORKING BREAK | | | | BREAK | | |
| **10:30 am** | 22023 USW-DSS **Robert Schmidt** NAVSEA PEO IWS 5E | ONI-2 Foreign Threats to Acquisition **TAC-13** ONI | 22065 MIW in the Future **Dr. Sam Taylor** PEO Unmanned and Small Combatants | | 22045 IWS5 Future Submarine and Surface Sensors **Peter Scala** IWS5A | 22003 Circulation Control Shroud for Submarine Maneuvering **Dr. Lingaiah Mendu** Newport News Shipbuilding | 22076 High Duty Cycle Waveforms for Multistatic Active Coherent Systems **Dr. Evan Westwood** Applied Research Laboratories- UT |
| **11:00 am** | 22004 Mission Display for ASW Cross Domain C3 Manned/Unmanned Systems Using AR and VR **Robert Higgins** General Dynamics Mission Systems | 21990 Engageability: A Fundamental Concept in Submarine Third Party Targeting **LT Andrew Tresansky, USN** NUWC-Newport | 22077 Evolution and Way Ahead for MK 18 Unmanned Underwater Vehicles and the Next Generation **Todd Webber** SSC Pacific | | 21989 The Arctic Challenge: Novel Employment of Existing Technologies to Maintain Our Undersea Dominance **LT Jeffrey Collins** Naval Postgraduate School | 22014 GhostSwimmer: Addressing Critical USW Needs of VSW Operations and Counter UUV with Non-Conventional UUVs **Michael Rufo** Boston Engineering | 22026 Air Deployed Acoustic Receiver Sonobuoy Improvement **Tyson Lawrence** Triton Systems, Inc. |

| | C4I<br>Paul Rosbolt<br>Session Chair | Combat Systems / Warfighter Performance<br>Dr. Bob Zarnich<br>Session Chair | Mine Warfare<br>Jon Tobias<br>Session Chair | | Undersea Sensors<br>Mike Janik<br>Session Chair | Undersea Vehicles<br>Tom Ruzic<br>Session Chair | Aviation USW<br>Glen Sharpe<br>Session Chair |
|---|---|---|---|---|---|---|---|
| | Nimitz Room | Harbor Lounge | Pt. Loma Room | | Skyline A | San Diego Room | Skyline B |
| 11:30 am | 21967<br>Network Virtualization for Navy Afloat, Undersea and Airborne Platforms<br>**Mark Mitchiner**<br>Cisco Systems, Inc. | ONI-1<br>ONI Intelligence Mission Data (IMD)<br>**TAC-06**<br>ONI | 21810<br>Mine Countermeasures Gap Analysis<br>**Dr. Peter Adair**<br>NSWC-Panama City | | 21947<br>Distributed Autonomous Sensing of Undersea Threats<br>**Dr. Peter Herdic**<br>Naval Research Laboratory | 22006<br>DARPA Hunter Program- Delivering Payloads from Extra Large Unmanned Underwater Vehicles<br>**Rick Neidlinger**<br>DARPA | 22027<br>Results of the Multistatic Active Coherent Enhancements Study<br>**Dr. Luke Hollmann**<br>Ultra Electronics USSI |
| 12:00 pm | **NETWORKING LUNCH** | | | | **LUNCH** | | |
| 1:00 pm | ONI-3<br>RedSub: Threat Submarine Modeling and Simulation<br>**TAC-04**<br>ONI | 21960<br>PMS 415 Program Updates<br>**Bob Jackson**<br>PMS-415 | 22007<br>Advanced Capabilities for Expeditionary MCM Sensing<br>**Dr. Daniel Sternlicht**<br>NSWC-Panama City | | 22034<br>Update on ONR Code 32ASW Projects<br>**CAPT Tracey Fischer**<br>TAF & Associates, Inc | 22013<br>Common UxV Carriage for Stowage, Handling, Launch, Recovery, Tendering, and Transportation of UxVs on Naval Platforms<br>**Travis Tucker**<br>NUWC-Newport | 22017<br>At Sea Validation of the Next Generation of Sonobuoy Systems<br>**Dr. Robert Henrick**<br>JHU-APL |
| 1:30 pm | 21957<br>Proposed Defense Against Poseidon Nuclear Powered/ Nuclear Armed Torpedo<br>**James Howe**<br>Vision Centric, Inc. | 21964<br>Renewing the Advantage through Modernized Training<br>**Christopher Capuano**<br>NUWC- Newport | 21914<br>Mine-hunting and Performance Estimation using Autonomous Underwater Vehicles<br>**Dr. James McMahon**<br>Naval Research Laboratory | | 21898<br>Structural Acoustic Processing for Fleet Sonars<br>**Dr. Zachary Waters**<br>Naval Research Laboratory | 22008<br>Enabling Autonomous Installation and Connection of Subsea Cables<br>**Kevin Veenstra**<br>Makai Ocean Engineering | 21991/22015<br>DVLA Sonobuoy Test Results and Update<br>**Ronald Buratti**<br>RDA Inc. |
| 2:00 pm | 21955<br>Maritime Test Bed Overview and Progress<br>**Joshua Henson**<br>PMS-485 | 21977<br>Human Thermal Warming Suit for Wet Submersibles: Warm Air Thermal System – (WATS)<br>**Brian Said**<br>Lockheed Martin | 22024<br>High-Temperature Superconducting Mine Countermeasures for Unmanned Sea Surface Vehicles<br>**Peter Ferrara**<br>NSWC-Philadelphia | | 22028<br>On-going Efforts in Acoustic Transduction at USSI<br>**Dr. James McConnell**<br>Undersea Sensors Systems, Inc. | 22005<br>Resilient Autonomous Vehicle Control using Model Based Systems Engineering<br>**Christopher Finlay**<br>Raytheon | 22087<br>Modeling and Simulation of Next Generation Sonobuoy<br>**Glen Wadsworth**<br>JHU-APL |
| 2:30 pm | 22010<br>Implementation of the MUOS and IW Waveforms on the Digital Modular Radio<br>**Jim Crowe**<br>General Dynamics Mission Systems | ONI-6<br>USW Threat<br>**OIC-322**<br>ONI | 22030<br>Next Generation Mine Countermeasures with Man Portable Autonomous Underwater Vehicles<br>**Dr. Gordon Clark**<br>General Dynamics Mission Systems | | 21932<br>Enhancing the Capabilities of Multibeam Echosounders to Include Doppler Velocity Data<br>**Paul Wanis**<br>Teledyne Marine | 21922<br>Hybrid Autonomy Architecture for Complex Missions<br>**Dr. James McMahon**<br>Naval Research Laboratory | 21956<br>Revisiting Depth Bombs for ASW<br>**LCDR Grant Garcia, USN**<br>OPNAV N81 |
| 3:00 pm | **NETWORKING BREAK** | | | | **BREAK** | | |

| C4I<br>Paul Rosbolt<br>Session Chair | Combat Systems / Warfighter<br>Performance<br>Dr. Bob Zarnich<br>Session Chair | Mine<br>Warfare<br>Jon Tobias<br>Session Chair | | Undersea<br>Sensors<br>Mike Janik<br>Session Chair | Undersea<br>Vehicles<br>Tom Ruzic<br>Session Chair | Aviation<br>USW<br>Glen Sharpe<br>Session Chair |
|---|---|---|---|---|---|---|
| Nimitz Room | Harbor Lounge | Pt. Loma Room | | Skyline A | San Diego Room | Skyline B |
| **3:30 pm**<br>22016<br>Automated Protocol Translator (APT)<br>**Thomas Santos**<br>Rite-Solutions, Inc. | 22046<br>IWS 5 Target Motion Analysis<br>and Weapons Control<br>**Lena Dagher**<br>IWS5ATD1 | 21908<br>Surface Ship Degaussing System<br>Performance Evaluation through<br>Finite Element Method Modeling<br>**Christine Kuhn**<br>NSWC-Carderock | | 22048<br>Portable Missile Impact Scoring System (PMISS)<br>Splash Impact Measurement System (SIMS)<br>**Dr. Harold Vincent**<br>DBV Technology, LLC. | ONI-4<br>Emerging and Disruptive Technology<br>in Undersea Domain<br>**TAC-12**<br>ONI | 21999<br>Hyperspectral Image Classification<br>**Charles Della Porta**<br>JHU-APL |
| **4:00 pm**<br>ONI-5<br>Adversary Submarine Operations - 1<br>**OIC-322**<br>ONI | 22009<br>An Alternative Approach to Failure Analysis<br>**Jaime Franqui**<br>Raytheon | 21998<br>Enabling Technologies for Covert, AUV-<br>based Mine Warfare Operations<br>**Tim Forbes**<br>Northrop Grumman Undersea Systems | | 22022<br>The Adaptable Monitoring Package<br>for Port Security Applications<br>**Dr. James Joslin**<br>Applied Physics Lab, University of Washington | 21954<br>Signals Collection from a Small<br>Unmanned Undersea Vehicle<br>**Abby Bailey**<br>L3 Adaptive Methods | 22086<br>Mid Frequency Active Sonobuoy Program Update<br>**Daryl Hawkins**<br>SeaLandAire Technologies, Inc |
| **4:30 pm**<br>ONI-9<br>Adversary Submarine Operations - 2<br>**ONI** | 21965<br>The Broadband Scattering Signatures<br>of Emerging Undersea Threats<br>**Dr. Brian Houston**<br>Naval Research Laboratory | 21876<br>The Role of Underwater Electromagnetic<br>Signature Reduction in Mine Countermeasures<br>**Dr. John Holmes**<br>NSWC-Carderock | | 21997<br>Laboratory Measurements and Simulations<br>of Reflections from a Water/Clay<br>Interface During the Diffusion of Salt<br>**Gabriel Venegas**<br>Applied Research Laboratories | 22025<br>Undersea Power and Data<br>**Wayne Liu**<br>SSC Pacific | 22019<br>500 Hz A-size Sonobuoy<br>**Tim Rorick &<br>William King**<br>Ultra Electronics USSI |
| **5:00 pm** | CONFERENCE ADJOURNS | | | | CONFERENCE ADJOURNS | |

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