



COMBINED NAVAL EVENT

21-23 MAY 2024 | FARNBOROUGH, UK

2024 Agenda

Supported by



National
Oceanography
Centre



Defence Director's Introduction to Navy Leaders

Wishing you a warm welcome to the 11th iteration of these meetings and the third time we have co-located our events. It is a pleasure to welcome you once more to Farnborough, where we are welcoming >1,500 attendees representing >58 nations and >250 companies.

We have a cross-section of attendees from international navies, defence industry and academia with a common purpose of assuring naval capabilities match to the strategic, operational, technological opportunities and demands of the future. This will be achieved through the following events:

Future Surface Fleet

This will analyse designing, building, modernising and sustaining fleets throughout their lifecycle. We are looking at how to maximise platform availability with presentations from both a naval and industry angle and learn what needs to be done to enable Fleets to be delivered to time, quality and cost. The development and maintenance of trusting relationships between the supplier and customer will be at the forefront of issues in this challenging area.

Surface Fleet Technology

Following the feedback from 2023, we have narrowed the lens of our technological partners and enabling organisations to look solely at the options for developing capabilities for the surface. Addressing C2, materials, ISR and more this promises to be one the must attend meetings for the surface community.

Submarine Technology

The unique capabilities of stealth, silence, lethality, endurance and deniability of submarines, allowing them to operate close to the threat are a vital component in our defence and deterrence strategy. Sensor performance, combat systems, new technologies and innovations around the development of new submarine capabilities will be shared.

Underwater Defence & Security

This will be split across MCM and ASW in an essential, stand-alone area that merits the discrete focus of these areas. Delegates will be updated on trends and changes in the operations, tactical employment and sustainability of UW, surface and airborne Fleets, whilst considering the impact of the latest technological developments.

We look forward to welcoming an international audience to discuss the key issues affecting this community and thank you for making the time in your diary to attend. My team and I are delighted to welcome you in May and will be available throughout the buildup to help you achieve your organisational goals.



Harry Macleod
Defence Director
Defence Leaders



Chairman's Introduction to CNE 2024

Welcome to the 2024 Combined Naval Event. Now in its third iteration, this has become the premier international forum for discussions on underwater capabilities and technologies, setting the scene for the year to come and the future beyond.

The Naval environment and its stakeholders are going through a resurgence in importance. Whether it is in the North Atlantic, Asia/Pacific region, Middle East or, indeed, globally through littoral seaspace, change and new threats and opportunities abound. The maritime environment is international by definition and increasingly, military and commercial interests cannot be separated; it is progressively contested by competing interests.

These changes are being matched by new capabilities. Autonomy and the digital revolution are having as great, and perhaps greater impact as elsewhere; those who don't keep up with capability developments will be increasingly marginalised and will gradually cede control. The immediate post-Cold War years when attention shifted from the underwater environment are now very much in the past.

When discussing the underwater environment we have traditionally viewed it through the lens of submarines, anti-submarine warfare and mine warfare. These retain their importance but on their own do not cover the span of important issues that need to be addressed. Navy Leaders acknowledges this and has listened to feedback from previous conferences and stakeholders. They have worked hard over the last 10 years, researching and analysing the current market trends, ongoing programmes and upcoming procurement projects in order to design an agenda to fully engage the broad community of interest and stimulate discussions well beyond the conference.

I am chairing this Conference for the fourth time; it is about an environment that has been at the heart of my professional career. We expect around 2,000 attendees from across the stakeholder community, from industry to the military. I am particularly looking forward to the international dimension. Like minded nations will only prevail to make this environment safe if we not only pool our resources but also our thinking and commitment. This conference offers a unique opportunity to advance this.

I look forward to welcoming you to Farnborough in May 2024.



Vice Admiral (Ret'd) Duncan Potts CB
Combined Naval Event 2024 Chairman



EXCLUSIVE PRIVATE BRIEFINGS

Located in Navigate 1: Invitation only (for information please contact the Defence Leaders Team)

Following the success of a series of private briefings run concurrently with the programme, Defence Leaders is delighted to be able to offer bespoke, confidential meetings to a select group of attendees. Whilst attendance is predominately by invitation only, please contact our team for consideration should you want to attend.

TUESDAY 21 MAY 2024

| | | |
|-------------|---|---|
| 0715 - 0845 | | SPONSORSHIP AVAILABLE |
| 0900 - 1030 | | SPONSORSHIP AVAILABLE |
| 1045 - 1215 | | SPONSORSHIP AVAILABLE |
| 1230 - 1400 |  | <p>Lean Crewing for Autonomy think tank <i>This session focuses on how navies can minimise and optimise the number of operators required for the mission systems, and how to have uncrewed assets working collaboratively and seamlessly with the crewed assets. Share your perspectives and learn insights from industry and navy representatives.</i></p> <p>Phil Wansbrough, Sales Manager – Maritime Rob Skarda, Director - Steller Systems Matt Moore, Deputy Sales Director - ISR Ian Watson, Product Line Manager - Maritime Julie Martin, Naval Account Manager</p> |
| 1415 - 1545 |  Harland & Wolff | <p>Supporting the future Royal Navy fleet: enhancing platform availability <i>Harland & Wolff shares its vision for supporting the Royal Navy and how it will bring commercial shipbuilding and support experience into the defence and government sector in order to enhance platform availability.</i></p> <p>Peter Coulson, Group Director Through Life Support and Strategic Facility Development Mark Lawther, Director of Strategic Facilities Development</p> |
| 1600 - 1730 | | SPONSORSHIP AVAILABLE |

Day One: Tuesday 21st May 2024

STRATEGIC THEMES

There are some issues that transcend capability areas and the event will commence by addressing the relevant challenges affecting both the surface and underwater community. Whether this is Ukraine, China, environmental or personnel, there are issues that impact all countries and the event will commence by addressing these in detail.

0615 - Morning run
SPONSORSHIP AVAILABLE

0800 - Registration
Hosted by Babcock
babcock™

0800 - Morning coffee
SPONSORSHIP AVAILABLE

Performance by
The Band of His Majesty's Royal Marines
Portsmouth

SURFACE KEYNOTES

Location: FSF Theatres

PROGRESSIVE NAVAL STRATEGY

This opening session of the surface component of CNE 2024 will delve into progressive approaches that redefine maritime surface operations. Experts in this session will discuss technological advancements, geopolitical considerations and collaborative frameworks shaping the future of naval warfare.



0900 - Chairman's opening remarks
Vice Admiral (Ret'd) Duncan Potts CB, Former Commander UK Maritime Forces, Royal Navy

- 0920 - Driving the RN strategy in line with our allies
- The UK's national shipbuilding strategy in line with allied interoperability
 - A global reinforced presence: where we see operations over the next decade
 - The role of industry in moving the Royal Navy forward



Vice Admiral Martin Connell CBE, Second Sea Lord, Royal Navy

- 0940 - The contribution of defence to development of a national enterprise
- The contribution of Defence to the sustainment of skills enabling a national endeavour
 - The importance of relationships with local communities to support defence programmes
 - Workforce sustainment



BAE Systems

- 1010 - Response to distributed manoeuvre operations: Capabilities for future destroyers
- Maritime defence capability (A2/AD Environment)
 - Future warfare (distributed manoeuvre operations)
 - Capabilities for future destroyers



Vice Admiral Imayoshi Shinichi [JMSDF], Director General Naval Systems, Japanese Acquisition, Technology and Logistics Agency

SUBSURFACE KEYNOTES

Location: UDS Theatres

EVOLVING SUBSEA THREATS

The underwater battlespace is becoming increasingly congested and contested. Nations are looking to respond to increased threats but face complex challenges covering vast areas and cunning adversaries. This session explores the evolving subsea threats and the capabilities required to counter them.



0900 - Chairman's opening remarks
Vice Admiral (Ret'd) Jeffrey Trussler, Former Deputy Chief of the Naval Operations for Information Warfare, US Navy

- 0920 - Building capacity and capability for undersea warfare
- An overview of 'grey zone' escalation in the underwater domain and the US Navy's response to a growing underwater threat
 - Developing allied situational awareness in the underwater battlespace
 - Engaging with industry and key military stakeholders



Vice Admiral Doug Perry, Commander US 2nd Fleet, US Navy

- 0940 - Integrating sense - decide - effect capabilities to deliver operational advantage underwater
- Enabling information advantage and rapid decision-making in complex underwater environments
 - Deploying cost-effective and scalable autonomous solutions for distributed underwater ISR
 - A 'System of Systems' approach to platform design to leverage disaggregated assets and capabilities



BAE Systems

- 1010 - Protecting European Critical Undersea Infrastructure (CUI): A new focus for NATO
- The evolution of threats to undersea infrastructure in Northern Europe and engaging with civil-military-industry stakeholders
 - Detecting, deterring (by denial and punishment) and defending our CUI from increasingly capable adversaries
 - NATO's initial priorities for protecting CUI



Director, Critical Undersea Infrastructure Coordination Cell



1030 - Morning coffee and networking
Hosted by Piller Germany GmbH & Co. KG and Bergen Engines



Performance by
The Band of His Majesty's Royal Marines Portsmouth



BENEFITS OF PROCUREMENT PARTNERSHIPS

The geopolitics of the Naval arena has created significant synergies for nations looking to collaborate efforts in ship building and operations. This session will explore some of the industrial allied collaborative opportunities.

1115 - Designing a new front door for Defence Equipment and Support (DE&S)

- Creating a setup to allow DE&S clients to better understand needs and possibilities
- Nurturing closer connections with industry to enable leadership in understanding technology, capability, the market, international opportunities and partnerships
- How DE&S' organisational design work is being realised

Rear Admiral Paul Carroll [RN], Director Project Initiation, **DE&S Ships Domain**

1135 - Presentation title to be confirmed

Paul Armstrong, Marine CEO, **Babcock International**

1205 - Defending maritime avenues of approach between North America and Europe

- Command and control for mission-ready forces to deter and defeat potential adversaries
- Strengthening our ability to operate with allies and partners
- Future plans for 2nd Fleet

Vice Admiral Douglas Perry, Commander 2nd Fleet, **US Navy**

UNDERWATER TECHNOLOGY

Advances in naval technologies have always shaped war at sea; now in the 21st century disruptive and emerging technologies provide opportunities and threats for fleets. This session will explore the technologies that will be needed by warfighters in the future to ensure dominance in the underwater environment.

1115 - Creating the conditions for dominating and winning in the undersea domain

- Mastering the integration of crewed and uncrewed technologies for optimum effects
- Speeding up the sense to effect chain; multi-domain command and control and why traditional C2 needs to evolve
- Enabling all domain access for effective ASW and seabed warfare

Rear Admiral Cédric Chetaille, Deputy Commander in charge of Seabed Warfare, **French Navy**

1135 - Agile support in a rapidly changing world

- Delivery of global support through increased collaboration
- Data capture, analysis and feedback to support greater decision making of MOD investments
- Service Frameworks with increased agility to manage complex systems requiring a mixture of bespoke and COTS products

Samy Mehsen, Head of Services Division, **ATLAS ELEKTRONIK UK**

1205 - UK Submarine design and build programmes

- Current force laydown
- Future plans and requirements
- Embracing industry; opportunities for industry input

Commodore Martyn Boyes, Director Submarines Acquisition, **UK MoD - Submarine Delivery Agency**

Day One: Tuesday 21st May 2024

1225 - FSF lunch and networking
Hosted by **Safeguard Engineering**



1225 - Tech lunch and networking
Hosted by **Leonardo**



1225 - UDS lunch and networking
Hosted by **Thales Deutschland GmbH**



| FUTURE SURFACE FLEET A | FUTURE SURFACE FLEET B | SURFACE FLEET TECHNOLOGY | SUBMARINE TECHNOLOGY | UNDERWATER DEFENCE & SECURITY A | UNDERWATER DEFENCE & SECURITY B |
|--|--|--|---|--|--|
| <i>In association with</i> NVL B.V. & Co. KG | <i>In association with</i> ABB Marine | <i>In association with</i> Matrix Pro Sims | <i>In association with</i> Babcock International | <i>In association with</i> General Dynamics Mission Systems | <i>In association with</i> Kongsberg Defence & Aerospace |
| | | | | | |
| INNOVATIONS TO ADVANCE THE NAVAL FLEET <i>Near peer threats highlight the requirement for increased focus on security and self-defence capabilities for surface platforms. This session will consider new technology, its integration and fusion with current platforms.</i> | POWERING NAVAL FORCES <i>The topic of naval ‘power’ can be discussed in a variety of ways. Power by integrating domains and different types of assets, physical ship power and propulsion or the computer systems we have behind our navies. This session explores the variations.</i> | TRAINING SOLUTIONS <i>This session will look at new developments in technology for training within the surface fleet domain. Looking to share knowledge and information on industry facilitators, NATO and FOST to ensure nations remain ahead of technological advancement.</i> | ENABLING SUBMARINE OPERATIONS <i>The increasing complexity of the underwater arena has led many countries to address their subsurface capabilities. This stream will open with a section addressing the upcoming and ongoing submarine programmes around the world.</i> | ASW SYSTEM OF SYSTEMS <i>Platforms that can find, identify and track UW targets must be fully integrated into a system of systems. This session will identify cross-industry opportunities and the technology required to implement a network of multi-nation, multi-domain assets.</i> | MCM MISSION PLANNING <i>Responding to the growing threat of naval mines is a necessity for navies. This session will explore how command and control of MCM operations is evolving to make clearance of mines faster and safer.</i> |
| 1405 - Chairman’s opening remarks Rear Admiral (Ret’d) Massimo Esposito , Former Branch Head and Military Assistant at the Italian Military Delegation, NATO HQ | 1405 - Chairman’s opening remarks Vice Admiral (Ret’d) Manuel Martinez Ruiz , Former Director Naval Engineering and Construction, Spanish Navy | 1405 - Chairman’s opening remarks Elissa Trueman PhD , Deputy Chief Technology Officer, US Navy Naval Surface Warfare Centre | 1405 - Chairman’s opening remarks Vice Admiral (Ret’d) Jeffrey Trussler , Former Deputy Chief of the Naval Operations for Information Warfare, US Navy | 1405 - Chairman’s opening remarks Commodore (Ret’d) David Burton , Director, NATO ASW Barrier Programme | 1405 - Chairman’s opening remarks Vice Admiral (Ret’d) Duncan Potts CB , Former Commander UK Maritime Forces, Royal Navy |
| 1415 - From interoperability to interchangeability: How innovation and technology is driving interaction <ul style="list-style-type: none">Background to the Tech Bridge networkHow the London Tech Bridge is bridging the innovation “valley of death”Moving the two navies to interchangeability through early and shared investment in technology Commander Daniel Weil , UK Co-Director Jeff Brewer , US Co-Director, London Tech-Bridge | 1415 - Introducing an ‘all-domain task force’ <ul style="list-style-type: none"><i>Awaiting points</i> Rear Admiral Michael Mattis , Director Strategic Effects, Commander US Naval Forces Europe/Africa , Task Force 66, US Navy | 1415 - NATO M&S CoE training activities: Use of simulation in maritime training environments <ul style="list-style-type: none">NATO Modelling and Simulation CoE education and training activitiesUse of simulation in maritime training environmentsJTLS-GO maritime capabilities and possible integration on maritime exercises Commander Dino Tropea [ITA] , Modelling and Simulation Education & Training Section Chief, NATO Modelling and Simulation Centre of Excellence | 1415 - The Norwegian and German common submarine programme and its relevance for other potential partners within NATO <ul style="list-style-type: none">Background and political ambitions behind the program; common submarine requirementsImportant factors for common submarine availability and common CONOPSStatus, expectations and the way ahead Captain Øystein Storebø , Programme Director Submarines, Norwegian MoD | 1415 - Meeting future ASW challenges and exploring future UWW concepts <ul style="list-style-type: none">Overcoming challenging ASW operating conditions and harmonising requirementsOff-board ASW shaping design and doctrine in the futureSeabed protection Professor David Manley , Professor of Naval Architecture, University College London | 1415 - rMCM programme update: Testing the integrated MCM toolbox <ul style="list-style-type: none">Benefits in sharing technical expertise in the development of MCM systemsTesting autonomous system for detection, classification and neutralisation of minesTactical development and training Commander Renauld Hock , BEL-NLD rMCM Project Leader, Belgian Navy |

1445 - Overcoming the challenges of traditional shipbuilding through agile product development techniques

- Necessities and requirements in modern naval ship design
- Connecting traditional methods of naval system integration with agile process frameworks and architectures
- AGILE MBSE design example, the latest developments on AGILE MBSE and a way ahead

Jens Rummler, Head of Sales Germany, NVL B.V. & Co. KG
Major Paul Dahlke [DEU Army], Research Associate Officer, University of the Federal Armed Forces Hamburg



1515 - Current operational picture and how this is impacting the future fleet

- An overview of the Bulgarian Navy's future fleet plan
- Why is the navy procuring multi-purpose modular patrol vessels?
- Operational planning for Bulgaria and how we plan to collaborate in the future

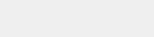
Captain Petar Dimitrov, Deputy Chief of Staff for Operations, Bulgarian Navy



1445 - Future power solutions for naval platforms

- Benefits of selecting a sustainable power and propulsion system
- Power system selection for optimising adaptable mission demands
- Why an OEM for electrical design/integration

ABB Marine
ABB



1515 - Use of a High Performance Computer (HPC) and AI for complex phenomena analysis on surface ship design

- An overview on the HPC and AI within the Spanish Navy
- Electromagnetic simulation of Electromagnetic Environmental Effects (E3) and radar signature
- Multiphysics and multiscale phenomena with the emphasis in propulsion technologies

Dr Joan Farnós, Head of Dual-Use Technologies, Barcelona Supercomputing Centre
Dr Fernando Obelleiro, Professor, University of Vigo



1445 - How Dstl has used wargaming and simulation in maritime analysis

- An overview of 'Command': What are the possibilities?
- Case study: Conceptual force options for maritime task groups
- An overview on our wider community in the MoD

Iain McNeil, CEO, Matrix Pro Sims



1515 - FOST vision of future synthetic training- the blend of synthetic and live

- An overview of the Royal Navy's FOST
- How does simulated/synthetic training fit with maintaining warships at readiness
- Embracing the use of synthetics in future training

Commodore Andrew Ingham, Commander, FOST, Royal Navy



1445 - Babcock's role as the Nuclear Asset Whole Life Support Partner

- The role of the Nuclear Asset Whole Life Support Partner
- The development of Nuclear Infrastructure
- The development of Nuclear SQEP and knowledge

Sir Nick Hine, Managing Director AUKUS and International, Babcock International Group



1515 - SSN-AUKUS: Delivering for Australia Strategic need for SSN

- Strategic need for SSN & optimal pathway
- Investment in skills, workforce and industrial base
- Rewards, risks and challenges

Commodore Allison Norris, Director Submarine Enterprise, Australian Submarine Agency



1445 - Augmenting multi-domain crewed operations with autonomous systems

- Advancement in crewed ASW and current state of remotely operated systems: UAV, USV, UUV in service
- Lessons learned from remote systems applied to fully autonomous systems
- Vision for autonomy: progress and next steps

Gavin Green, Business Development Manager, General Dynamics Mission Systems

GENERAL DYNAMICS

1515 - Integrated/interchangeable anti-submarine warfare technologies for future complex scenarios

- Achieving ASW supremacy via common C2 and MUS features
- OPEX and an iterative developmental approach to ASW systems
- Future systems for protecting critical energy infrastructure, ASW and subsea protection

Commander Jon Arild Brath Strandnæs, Section Manager - Underwater Weapons and Sensors, Norwegian Defence Materiel Agency



1445 - Improving command and control for MCM operations

- Long-range AUVs for mine-countermeasure activities
- Ensuring better data quality for fast and efficient operations with no surface visibility.
- Precise mine localisation technologies

Kongsberg Defence & Aerospace



1515 - The future of safer, faster naval mine warfare

- The shift to uncrewed NMW systems and what this means for C2 at sea
- Future planning and evaluation tools and the role of industry in ensuring these are integrated
- Assimilating, assessing and distributing data effectively across platforms and between nations

Thomas Furfaro, Scientist, NATO Centre for Maritime Research & Experimentation



1545 - Afternoon coffee and networking

Hosted by MilDef Ltd



OPTIMISING EEZ PROTECTION
This session will discuss how navies are investing in their future fleets to increase their impact with agile solutions in contested environments.

1630 - **Maximising assets with innovation and collaboration**

- How the Lithuanian Navy are collaborating with local academic agencies
- Future challenges for Baltic Navies
- Innovation currently being explored in Lithuania’s maritime domain


Lieutenant Commander **Justinas Žukauskas**, Senior Specialist, Sea and Air Combat Platforms Division, Lithuanian MoD, Defence Materiel Agency



1700 - **Proven VS Bespoke: The hull design conundrum**

- Advantages in adopting cost-effective extant hull design
- Tailoring projects to requirements enabling flexibility and innovation
- Risk mitigation and efficiency with considerations around cost, schedule and performance

QinetiQ




ENERGY STORAGE
The need for ships to remain mission capable with power in hostile environments must be factored in the design process. This stream will explore why design, energy storage and survivability are so key.

1630 - **Compact, capable and cost effective: Can a revolutionary new power system deliver it all?**

- Energising naval operations: Is the power system seen as platform equipment or an enabler of naval operations?
- Autonomy, energy-intensive effectors, multi-role platforms, sustainability: In a still-emerging era can we plan to have it all?
- Collaborating to change our thinking about energising naval operations: What the future looks like


Nick Smith, Global Executive, Systems, **GE Vernova’s Power Conversion business**



1700 - **Power generation technology for the future surface combatant**

- Integrating propulsion, battery systems and energy storage to optimise fuel efficiency
- The challenges of being proactive and reactive with electrical obsolescence
- How the input of industries will affect power systems onboard the future surface fleet

Captain **Jesse Black**, Commanding Officer, **U.S. Naval Research Laboratory**




UTILISING AI AND CYBER WITHIN THE NAVAL AVIATION DOMAIN
Closing the surface fleet stream on day one has a clear focus on the AI and cyber considerations on testing, trialling and finding simple solutions for big systems and naval aviation platforms.

1630 - **Achieving assured and interoperable tactical networking via virtual environments for bigger systems, faster and with less cost**

- Provision of network and bearer emulation that could support initial SecDevOps and digital twin capability
- De-risking and assurance of physical attributes i.e. antennas, encryption
- Development of COTS techniques and equipment with a military context in a more efficient and effective testing environment


Paul Santry, Principle Consultant for Cyber and Information Systems Division, **UK MoD Dstl**



1700 - **Innovative use of AI to increase aircraft availability in the Fleet Air Arm**

- Understanding how AI can improve analysis in areas of wear debris analysis and vibration health monitoring
- Use cases to illustrate how AI can automatically identify and label debris fragments within samples from aircraft
- Use of AI in predictive maintenance: Reducing costs whilst increasing aircraft availability in the Fleet Air Arm

Simon Shaw, **Frazer-Nash Consultancy Ltd**




OPTIMISING NAVIGATION
Safe and effective submarine navigation is essential. This section will discuss the current innovations in navigation technology. Satellite navigation is increasingly susceptible to jamming, imitation and denial, so alternatives must be considered.

1630 - **Investigating solutions for submarine navigation**

- Exploring the challenges of underwater navigation
- Overview of technical gaps in current navigation systems
- Understanding requirements for future submarine systems


Lieutenant Commander **Sehoon-Cha**, KSS-III Programme Manager, **South Korean Navy**



1700 - **The development of the quantum compass and its impact on navigation**

- Understanding the limitations of GPS underwater
- Future development of a complete positioning system
- The implications for achieving a complete navigation system underwater

Navantia S.A, S.M.E



EXPLOITING TECHNOLOGY IN THE UW ENVIRONMENTS
Sensors perform an increasingly vast array of tasks. Detection and tracking through to monitoring atmospherics to spot anomalies. How best can we increase their range and accuracy and what investment vehicles are to exploit them?

1630 - **Developing the NATO innovation network for next generation technologies**

- Background to DIANA and current timeline
- Innovations that allow technology to be exploited for complex scenarios
- How to engage with DIANA

Heather Desserud, Communications Director, **NATO DIANA**



1700 - **Manned-Unmanned teaming solution for EOD divers and Special Ops**

- *Awaiting points*

Pierre-Alexandre Caux, Business Director, **RTSYS**



MODULAR MINE COUNTERMEASURES
The new school of MCM thinking is rapidly becoming reality. Shifting towards a modular and stand-off approach utilising motherships and UxVs promises faster and safer operations.

1630 - **Developments in modular MCM technology**

- Advantages of mission modules for legacy and future platforms
- Applications of mission modules for MCM
- Utilisation of mission modules with uncrewed platforms

HHI Mission Technologies



1700 - **UK MHC – the SRO’s perspective**

- Exploiting innovative and technically advanced systems to identify and dispose of sea mines
- Testing different acquisition approaches to optimise future delivery of all autonomous systems
- Setting the template on how we operate and integrate within the wider force

Jonathan Reed-Beviere, Programme Director - Mine Hunting Capability Programme, **Royal Navy**



Day One: Tuesday 21st May 2024

1730 - **Seamless alliances: Navigating successful transitions of warships to partner nations**

- Overview of the importance of international partnerships in naval operations
- Highlighting critical elements that contribute to a successful transition
- Cast studies and an explanation on diplomatic and strategic Implications

Commodore Richard Whalley, Head of Defence Equipment Sales Authority & **Colonel Craig Renney**, Head of Disposal Programme, **UK MoD DE&S**



1800 - *Chairman's closing remarks*
Rear Admiral (Ret'd) Massimo Esposito, Former Branch Head and Military Assistant at the Italian Military Delegation, **NATO HQ**



1730 - **Intelligent propulsion and power systems for unmanned ships**

- The unmanned naval ship – a system of systems
- Design drivers and enablers for autonomous propulsion systems
- Development approach - model based system engineering

RENK GmbH



1800 - *Chairman's closing remarks*
Vice Admiral (Ret'd) Manuel Martinez Ruiz, Former Director Naval Engineering and Construction, **Spanish Navy**



1730 - **Current and future plans for the RAN**

- Operational situation dictating surface needs
- Top five priorities
- Collaboration opportunities across nations and industry

Commodore Anita Williams, Director General Surface Combatants and Aviation Branch, **Royal Australian Navy**



1800 - *Chairman's closing remarks*
Elissa Trueman PhD, Deputy Chief Technology Officer, **US Navy Naval Surface Warfare Centre**



1730 - **A future GPS-free navigation system: getting quantum sensors out of the laboratory**

- Quantum enabled navigation in real-world settings
- Removing the need for satellite reliance in denied/restricted areas for accurate maritime navigation
- NavyPods: connectivity, adaptability, interchangeability and simplicity

Dr Joseph Cotter, Advanced Research Fellow, **Imperial College London**



1800 - *Chairman's closing remarks*
Vice Admiral (Ret'd) Jeffrey Trussler, Former Deputy Chief of the Naval Operations for Information Warfare, **US Navy**



1730 - **Technology priorities for naval warfighting**

- Partnering with allies and partners to help meet US Navy and Marine Corps operational needs
- Advancing technology for sensing, sustainment and high-latitude navigation
- Maritime Command, Control, Computing, Communications, Cyber, Intelligence, Surveillance, Reconnaissance and Targeting (C5ISRT)

Dr Rhett Jefferies, Technical Director - ONR Global, **US Navy**



1800 - *Chairman's closing remarks*
Commodore (Ret'd) David Burton, Director, **NATO ASW Barrier Programme**



1730 - **Maintaining control of the sea: Modern acoustic mine-sweeping**

- *Awaiting points*
- Janne Muurinen**, Vice President - Sea Domain and **Petri Salmela**, Product Manager Underwater Systems **Patria**

Patria

1800 - *Chairman's closing remarks*
Vice Admiral (Ret'd) Duncan Potts CB, Former Commander UK Maritime Forces, **Royal Navy**



1800 - Evening drinks reception
Hosted by **NVL B.V. & Co. KG**



1945 Carriages

2000 Hall Close




EXCLUSIVE PRIVATE BRIEFINGS

Located in Navigate 1: Invitation only (for information please contact the Navy Leaders Team)

Following the success of a series of private briefings run concurrently with the programme, Navy Leaders are delighted to be able to offer bespoke, confidential meetings to a select group of attendees. Whilst attendance is predominately by invitation only, please contact our team for consideration should you want to attend.

WEDNESDAY 22 MAY 2024

| | | |
|-------------|---|---|
| 0715 - 0845 | | SPONSORSHIP AVAILABLE |
| 0900 - 1030 |  | <p>The next generation of atmosphere monitoring <i>An open discussion on Analox's perspective of 'the next generation of atmosphere monitoring'. An opportunity for participants to give feedback and discuss their perspectives and the way forward.</i></p> <p>Nathan Stevenson, System Architect, ANALOX Vicky Pigg, Sales and Strategy Director Defence, ANALOX</p> |
| 1045 - 1215 |  | <p>Are we ready for a digital and data enterprise? <i>The future vision of a seamless connection between force elements, where data is shared at speed has been at the heart of recent doctrine. Are we on track to realise this vision? What do current global conflicts and threats mean for the need to deliver the defence digital backbone?</i></p> <p>Robert Clifford, Head of Digital and Data, Maritime & Land, BAE Systems</p> |
| 1230 - 1400 |  | <p>Charting the Course: Exploring the Future of Naval Operations with Dual-Use Systems for Acoustic Signature Monitoring and Prognostic Health <i>A workshop to delve into the potential of a dual-use system that could redefine how we manage acoustic signatures and ensure ship health. Explore the potential to redefine the landscape of naval warfare and drive operational excellence, offering unparalleled advancements in stealth capabilities and cost-effective maintenance strategies. Through concrete examples and case studies, uncover the real-world impact of these solutions and gain insights into how they can drive operational excellence in naval warfare.</i></p> <p><i>Hosted by</i> HBK - Hottinger Brüel & Kjær</p> |
| 1415 - 1545 |  | <p>Advanced RF Strategies for Maritime Surveillance: Unseenlabs' Innovation at the Forefront of Global Security <i>Explore cutting-edge RF strategies in maritime surveillance with Unseenlabs at the forefront of addressing global security challenges. This workshop offers insight into innovative RF detection technology, fostering dialogue on enhancing maritime domain awareness and showcasing collaborative solutions to secure the oceans against illegal activities.</i></p> <p><i>Hosted by</i> Unseenlabs</p> |
| 1600 - 1730 | | SPONSORSHIP AVAILABLE |















Day Two: Wednesday 22nd May 2024

0615 - Morning run
SPONSORSHIP AVAILABLE

0800 - Registration
Hosted by Babcock

0800 - Morning coffee
SPONSORSHIP AVAILABLE



| FUTURE SURFACE FLEET A | FUTURE SURFACE FLEET B | SURFACE FLEET TECHNOLOGY | SUBMARINE TECHNOLOGY | UNDERWATER DEFENCE & SECURITY A | UNDERWATER DEFENCE & SECURITY B |
|--|--|---|--|---|---|
| <div>In association with BAE Systems</div> <div>BAE SYSTEMS</div> | <div>In association with V Group</div> <div></div> | <div>In association with General Atomics</div> <div>GENERAL ATOMICS AERONAUTICAL</div> | <div>In association with Helsing</div> <div>Helsing</div> | <div>In association with BAE Systems</div> <div>BAE SYSTEMS</div> | <div>In association with JFD</div> <div>JFD</div> |
| <div>OPERATIONAL IMPACT ON NAVAL PROGRAMMES</div> <div>Embracing disruptive and emerging technologies in the maritime domain are essential to maintain an edge on operations. Navies need to evolve traditional processes to create a collaborative environment and explore the implications and applications of new technology.</div> <div>0850 - Chairman’s opening remarks Rear Admiral (Ret’d) Massimo Esposito, Former Branch Head and Military Assistant at the Italian Military Delegation, NATO HQ</div> <div></div> <div>0900 - The future of the Royal Navy’s amphibious capability with MRSS<ul style="list-style-type: none">An overview of the Multi-role support ship (MRSS) programmeCollaborative opportunities with the NetherlandsEnsuring the amphibious force maintains a high readiness rates<div>Brigadier Sean Brady, Navy Develop - Deputy Director Shipbuilding, Royal Navy</div><div></div></div> | <div>DEVELOPING AND SUSTAINING A NAVAL FORCE</div> <div>All navies and governments are looking to develop naval forces with influence from different government agencies, the commercial sector and industry.</div> <div>0850 - Chairman’s opening remarks Vice Admiral (Ret’d) Manuel Martinez Ruiz, Former Director Naval Engineering and Construction, Spanish Navy</div> <div></div> <div>0900 - How the UK is transforming defence with science and technology<ul style="list-style-type: none">Key priorities for the UK MoDTouch points on science and technology within UK defenceInformation on relationships between industry and the Ministry of Defence<div>Paul Lincoln CB OBE VR, Second Permanent Secretary, UK MoD</div><div></div></div> | <div>TRANSFORMING DEFENCE WITH AVIATION TECHNOLOGIES</div> <div>The defence arena is changing and we are utilising new technologies to enhance operational agility within the naval aviation domain. Naval forces are now becoming more resilient in modern maritime challenges and this session describes how.</div> <div>0850 - Chairman’s opening remarks Elissa Trueman PhD, Deputy Chief Technology Officer, US Navy Naval Surface Warfare Centre</div> <div></div> <div>0900 - Forward thinking in the building of a naval aviation force<ul style="list-style-type: none">Enhancing missions with a dedicated maritime air fleetAn explanation of some of the cutting-edge technologies to add to operationsExtending wide area situational awareness<div>Commodore Steve Bolton, Navy Develop - Aviation Future Programmes, Royal Navy</div><div></div></div> | <div>TECHNOLOGICAL INNOVATIONS FOR SUBMARINES</div> <div>Upgrades and innovations are imperative to continued mission success and keeping submarines functioning as an asset whilst ensuring they can deliver in their environment. The opening section will stimulate discussion around innovations and their impact.</div> <div>0850 - Chairman’s opening remarks Vice Admiral (Ret’d) Jeffrey Trussler, Former Deputy Chief of the Naval Operations for Information Warfare, US Navy</div> <div></div> <div>0900 - Toward underwater superiority - capabilities for future submarines<ul style="list-style-type: none">Maritime defence capability (A2/AD Environment)Future warfare (toward underwater superiority)Capabilities for future submarines<div>Vice Admiral Imayoshi Shinichi [JMSDF], Director General Naval Systems, Japanese Acquisition, Technology and Logistics Agency</div><div></div></div> | <div>CROSS DOMAIN INTEGRATION FOR EFFECTIVE ASW</div> <div>Leveraging AI/ML advancements to enhance cross-domain connectivity is essential for effective ASW operations. This session will explore how we can best fuse data from multiple sources into an actionable and interoperable battlespace picture.</div> <div>0850 - Chairman’s opening remarks Commodore (Ret’d) David Burton, Director, NATO ASW Barrier Programme</div> <div></div> <div>0900 - The Royal Navy’s vision for a hybrid underwater capability in 2040 - How we’ll fight<ul style="list-style-type: none">Developing a networked and highly digitised battlespaceLeveraging cutting edge technologies through operational experimentationRemote sensing, ASW barriers and area-denial into the future<div>Captain Michael Wood RN, Head Underwater Battlespace Capability, Royal Navy</div><div></div></div> | <div>IMPROVING DIVING OPERATIONS</div> <div>A proliferation of underwater threats highlights the requirement for an increased use of divers. This session will consider the contribution of new technology, its integration and fusion with current systems.</div> <div>0850 - Chairman’s opening remarks Vice Admiral (Ret’d) Duncan Potts CB, Former Commander UK Maritime Forces, Royal Navy</div> <div></div> <div>0900 - Plans for diver sensors to improve UW missions<ul style="list-style-type: none">Potential of diver networks combined with surface pictures to augment capabilityDiver research plans in the pipelineResults and lessons learned from participation in recent diving exercises<div>Captain Cameron Chen, Expeditionary Combat Branch Head - OPNAV N957, US Navy</div><div></div></div> |



Day Two: Wednesday 22nd May 2024

0930 - Identifying future trends and designs in warship design

- Next generation vessel designs: RHIBS to Aircraft Carriers
- How innovative designs increase versatility, manoeuvrability and efficiency
- Solutions for adaptable, high performing, sustainable fleets

BAE Systems



0930 - Transferring expertise from the commercial domain to the defence sector

- A perspective on the importance of readiness
- Innovations currently being utilised in the topic of fleet support
- Thoughts on ways in which Navies and commercial organisations can collaborate and develop new solutions

Stephen Macfarlane, CIO and Defence Lead, V.Group



0930 - Integrating large uncrewed aircraft onto aircraft carriers

- Adapting the MQ-9B Protector for carrier operations
- Mission sets that exploit the long flight endurance
- Integration considerations for uncrewed systems

Dr Johnny King, Vice President, General Atomics Aeronautical Systems UK



0930 - Supercharging underwater capabilities with AI and software

- The underwater domain is becoming more congested and noisy, but threats are becoming more stealthy
- In the meantime, sensors generate petabytes of data and autonomous platforms extend reach and surveillance
- AI can analyse huge volumes of data and interpret complex scenarios, but how can the Submarine enterprise embrace it to gain operational advantage now?

Helsing



0930 - Maximising UW information sharing

- How modern systems need to interact to maximise detection
- Mission planning, simulation and testing facilities for ASW
- Partnership programs for increased knowledge sharing

BAE Systems



0930 - Crossing the water gap and fulfilling wider mission objectives

- Bridging the water gap: Organic maritime insertion
- Enhancing effect for mission success (sensors and effectors)
- Concepts for employment: Hybrid craft opportunities

JFD Limited



1000 - M-SASV (Medium Size Semi-Autonomous Surface Vessel) development in the EDF EUROGUARD project

- Project overview
- Initial capability requirements
- Challenges

Ats Janno, Head of Project Management Bureau, Estonian Centre for Defence Investment



1000 - Delivering collaborative category management for the Royal Navy

- Collaborative working for joint benefit realisation
- How the RN are listening to industry expertise
- Category strategy progress and the future

Toni Gray, Director Equipment Support Programmes, Navy Acquisition, Royal Navy



1000 - Remote maritime monitoring: Challenges, lessons identified and possible ways ahead

- Operational and infrastructural challenges and opportunities for industry partners
- From a manned to a remote surveillance station
- System integration and communications: The crux of the matter

Lieutenant Commander Charles-Henri Thouaille, CO Channel and North Sea Maritime Surveillance Network, French Navy



1000 - Understanding changing naval power in the Indo-Pacific

- Contextualising crucial international security issues at sea in the Indo-Pacific
- China's growing submarine capabilities
- Shifting from a reactive to proactive stance in the region

Professor Alessio Patalano, Professor of War and Strategy in East Asia, King's College London



1000 - Enhancing NATO's maritime situational awareness from seabed to space - Digital Ocean

- Developing and coordinating persistent, agile and adaptive capabilities for sensing above, on and above the sea
- Exploiting big data at the speed of relevance
- Countering a diverse range of current and future threats to maritime security and global stability; now and in the future

Sean Trevethan, Senior Capability Manager - Defence Investments Division, NATO



1000 - NATO SOFCOM's Role supporting a Culture of Innovation and enabling conditions for Strategic Advantage: BOLD MACHINA

- Testing, exercising, and experimenting with manned and unmanned sensor systems focused on signature management in the maritime domain
- Unlocking NATO resources, tools, and talent
- Amplifying SOF requirements with industry

Captain (N) Kurt Muhler, Maritime Development Branch Head, Allied Special Operations Forces Command



1030 - Morning coffee and networking

Hosted by JFD



Day Two: Wednesday 22nd May 2024

DEVELOPING THE AMPHIBIOUS FORCE

Nations are seeking to enhance their amphibious forces by applying new technology to reduce risks to personnel and to make operations more effective. This section will explore how technology is developing to support more littoral operations.

1115 - Ensuring synergy in expeditionary maritime warfare between departments of the US Navy

- Strengthening advocacy efforts among stakeholders to highlight the significance of amphibious and expeditionary capabilities on a global scale
- Overseeing communication, coordination, and synchronisation between HQMC, OPNAV Directorates, and key stakeholders
- Building and maintaining a robust reputation by advocating for the importance of expeditionary maritime capabilities in public policy discussions

Colonel Steven Eastin, Branch Head, Expeditionary Warfare Integration, OPNAV, N95, **US Navy**



1145 - Building tomorrow's Amphibious capabilities

- Recent case studies with US and Australia
- Working with the user to refine operational requirements
- Collaboration with partners to benefit the warfighter

SPONSORSHIP AVAILABLE

EVOLVING MISSION READINESS

Fleets are constantly required to increase operations in both quantity and size. This means replenishment at sea is an essential evolution for sustaining a platform's ability to operate, survive at war and if necessary, fight.

1115 - Enabling 24/7 deployed maintenance for naval platforms

- The challenges faced when conducting planned and unplanned maintenance activities
- Expanding repair capabilities using industry partners
- Establishing expeditionary repair capability within the theatre

Captain Brian Karosich, Commanding Officer of the Forward Deployed Regional Maintenance Centre, **US Navy**



1145 - Live demo: Providing advanced passive fire protection to platforms

- Addressing two shipbuilding challenges: Fire protection and weight
- What is COMFIRE®? From bottle banks to naval platforms - a sustainable journey
- Past and future applications: A noncarcinogenic, lightweight and modular solution for surface and sub-surface environments

Dr Ralph Rizk, Managing Director, **Jered - Marine Systems Technology**, a PaR Systems Company



MARINE SYSTEMS
TECHNOLOGY

DISRUPTIVE C5ISR INTEGRATION

C5ISR is a key area of interest and already in the SFT stream we have noticed navies looking to find secure, reliable solutions. This session will look at a few ideas to take C5ISR to the next level and its integration into the fighting force.

1115 - Single Information Environment (SInfoE) Architecture

- Enabling the seamless movement of data between nodes in a pan-defence system of systems
- Exploiting science and technology to provide the interoperability mechanism for Multi-Domain Integrated Systems (MDIS)
- Next steps following Trial Acheron in July 2024

Amanda Shakir, Information Interoperability: Communications and Networks Programme Manager, **Cyber and Information Systems Division, Dstl**



1145 - Leading maritime connectivity: The future of satcom

- The future of maritime networks: Exploiting software defined networks
- Operationalising emerging low earth orbit satcom technology to provide resilience through bearer diversity
- The baseband, terminal and modem: The unsung heroes of satcom technology

Nick Fuller, Strategic Maritime Business Development, **Airbus Defence & Space**



SUBMARINE DEVELOPMENT PROGRAMMES

Conventional diesel-electric and AIP submarines produce less noise than their nuclear counterparts but each have options for improving stealth capabilities in line with global threats. Here we will analyse current key programmes.

1115 - The Royal Thai Navy's submarine fleet: The future picture

- What we had before and why we changed
- The current operational picture and how we are responding
- Future budget and decision timeline

Rear Admiral Pongsak Somboon, Commander Submarine Squadron, **Royal Thai Navy**



1145 - Integration of complex, connected, digital submarine systems

- Historical transition from mechanical engineering design focus to integrating complex, connected, digital systems on modern platforms with data being a core focus
- Benefits data-centric designs provide
- Essential Development and Integrity Assurance considerations for these systems

Steph Carroll, **Frazer-Nash Consultancy Ltd**



ASW INTEROPERABILITY

Maritime forces require defence in all environments, but particularly from submarines. Force protection requires rapid abilities to detect and destroy, ideally via a network of sensors and this session will dissect some of the essential components, including the impact of MAS (maritime autonomous systems).

1115 - Unleashing the power of optical fibre sensing for ASW and underwater warfare

- Subsea acoustic monitoring for ASW and seabed warfare
- Fully optical thin-line towed array technology
- How optic technology can revolutionise underwater security

Optics 11



1145 - Managing the transition to Maritime Autonomous Systems (MAS) in the underwater domain

- Overcoming the challenges of Integrating MAS into maritime force structures.
- Exploiting uncrewed/autonomous systems in congested/contested environments
- Capitalising on MAS potential through the evolution of sensor technologies

Andrea Bell-Miller, Director of International Programs - PEO Unmanned and Small Combatants, **US Navy**



MOVING TO DEPLOYMENT

A move towards autonomous mine-hunting will enable forces to counter the rapidly evolving threat of modern sea mines while reducing the risk to sailors and high-value equipment. Many projects are underway currently.

1115 - Deploying the first wave of MAS on operations

- Experience on operations on the Clyde and in the Gulf
- Managing the transition from crewed platforms to mission system teams
- Key insights on the opportunities and challenges posed by operating uncrewed systems for MCM

Commander Dan Herridge, Commander Mine Threat Exploitation Group, **Royal Navy**



1145 - MuMNS and future modular ROV systems

- Ensuring flexibility and space for future technology systems
- Green energy solutions into navy operations
- Training crew, repairing/upgrades without taking the vessel out of operation

Chris Lade, Defence Sales Manager, **SAAB Dynamics AB**



Day Two: Wednesday 22nd May 2024

1215 - The UKs Commando Force programme: Enabling strike

- Progress update, including initial observations on littoral response groups
- Integrating Commandos into the wider force
- Future acquisition priorities

Captain Nick Unwin, Programme Director - Commando Force, Navy Acquisition, **Royal Navy**



1215 - Naval programmes managed by OCCAR with a focus on the modern Logistic Support Ship (LSS)

- OCCAR: A team that delivers
- An update on the current status of the LSS programme
- State-of-the-art design and technical features explained

Rear Admiral Lorenzo Polisen, LSS Deputy Program Manager, **OCCAR**



1215 - Digitally reimagining naval power

- Reliance upon digital components rather than the traditional physical assets
- Hardware dependent systems facing challenges in adapting to an evolving digital kill-chain
- The cruciality and urgency of developing digital capabilities to align with forward-looking strategies and commercial applications

Lieutenant Artem Sherbinin, Chief Technology Officer - Task Force Hopper, **US Naval Surface Forces, US Navy**



1215 - S80 submarine programme update; lifecycle management

- Collaborative technological developments
- TLS of complex platforms
- Future upgrades and requirements

Captain Juanma Torrijos, Head of Technical Office - S80 Lifecycle Support, **Spanish Navy**



1215 - Advances in robotic systems for persistent undersea surveillance

- Expanding employment of uncrewed undersea systems for rapid environmental assessment
- Use of robotic systems across the undersea warfighting domain for data gathering and exfiltration
- Persistent platforms for critical undersea infrastructure protection

Teledyne Marine



1215 - UKHO / UK MWDC exploitation of data collected by MAS

- Delivering today for existing MCMVs and developing ASVs and AUVs
- Understanding the requirements for future systems and developing appropriate databases
- Developing new S100/500 standards to fully enable seamless data sharing

Lee Contreras, Defence Products and Services Manager, **UK Hydrographic Office**



1245 - Surface zone lunch and networking
Hosted by PA Consulting Holdings Ltd.



1245 - Technology zone lunch and networking
Hosted by CUBEDIN



1245 - Underwater zone lunch and networking
Hosted by Laing O'Rourke



SURVIVABILITY AND SAFETY

Survivability ranges from defensive systems and force projection through to armour and EW capabilities. This session explores how to build and maintain a high level of survivability to asset sea control and create stability.

1415 - Navigation safety requirements during the construction and armament phase

- Likely military characteristics of future vessels
- How new navigation technologies will influence effectiveness
- Initiatives to ensure safety is considered during construction

Commander Guillaume Belléard, Branch Head - Permanent Commission for Programmes & Tests, **French Navy**



STREAMLINING BUILD STRATEGY

With many in-service vessels now approaching their end of life, one of the preferred options is building a bespoke platform. This section sets out to review current plans that nations are investing in and how to ensure a smooth build process.

1415 - Thai Surface Fleet: Adapting to current threats

- Force laydown for RTN surface fleet
- Operational picture and impact on the fleet
- Acquisition and future deployment plan for the RTN

Captain Wachirawit Nora-On, Director Contract Management, Naval Acquisition Management Officer, **Royal Thai Navy**



CONNECTED DATA AND AI APPLICATION

Hardware development is well established and the struggle now lies with integrating, powering and connecting internal software. This session looks at the realities of connecting systems to challenges.

1415 - Developing a Digital Ocean

- Coordinating persistent, agile and adaptive capabilities for sensing above, on and above the sea
- Exploiting big data to increase the cognitive capacity
- Digital Ocean: A focus on systems and platforms

Sean Trevethan, Senior Capability Manager - Defence Investments Division, **NATO**



FUTURE SUBMARINE TECHNOLOGIES

Ageing submarine fleets mean that a number of nations are undertaking challenging programmes to replace platforms - a priority is integrating new technologies for increased sensing, survivability and lethality.

1415 - Near Future Submarine - Human Factor Engineering (HFE) and it's technological challenges

- Developments in HF approach to follow systems enhanced capabilities
- HF applied to under development technologies
- HF and "over the horizon" technological challenges

Alessandro Irvia, Near Future Submarine - Platform Officer, **OCCAR-EA**



UNCREWED SYSTEMS

Uncrewed vessels are an increasingly important element of naval warfare. Their capabilities, sensors and how to launch and recover these platforms are big topics so this session will explore plans that have progressed and what the next step may be for the future.

1415 - Technologies impacting future ASW: system-of-systems, platforms and sustainability

- Sustainable and scalable ASW detection
- International collaboration: Developing effective technology
- Requirements and opportunities for industry engagement on persistent ASW challenges

Gavin Tapsfield, CHARYBDIS Deputy Team Leader, **UK MoD - Submarine Delivery Authority**



ENSURING EFFECTIVE PROCUREMENT

The expansion of MCM activities have increased the need to ensure collaboration. Close attention must be paid to cost controls and inflation as well as ships and their off board systems.

1415 - Moving towards Block 2 of the UK's MHC Programme

- Transitioning Block 1 solutions into steady state support & applying the lessons from Block 1 into our Block 2 approach
- Delivering the long lead elements of Block 2 – a focus on integration and Command and Control
- Block 2 mission system acquisition - the opportunity for industry

Andy Lapsley, Mine Hunting Capability Team Leader, **UK MoD - DE&S**



Day Two: Wednesday 22nd May 2024


1445 - Reinventing shipbuilding and survivability

- How digital transformation is driving change in ship building
- The benefits of bringing survivability to design, build, operate and support naval vessels
- Balancing a far-reaching vision with a pragmatic approach to transformation

Harland & Wolff
 Harland & Wolff

1445 - The genetic transformation of the Portuguese Navy fleet

- Disruptive operational concepts and solutions
- Mission modularity and flexible capability integration
- Fleet transformation drivers

Rear Admiral Antonio Mateus, Director of Ships, Portuguese Navy


1445 - Using data analytics for practical naval applications

- Using big data to avoid technology
- Understanding past investments and project areas for future investment
- Determine where to lead, follow, or partner

Think Logical
 A BELDEN BRAND

1445 - Near Future Submarine Technologies and Solutions for Integrated Underwater Operations

- Large Aperture Array on conventional submarines
- Stealth Array Design
- Managing thousands of channels

Luigi Laporta, Project Executive and Ralf Siegfried, Director of Product Management, ELAC SONAR GmbH



1445 - Progress in demonstrating multistatics for networked ASW operations

- How STANAG 4585 ('Multistatic Messaging') enables multistatic ASW operations
- Industry perspective on RN's 2023 Multistatic Active Trials
- Incorporation of uncrewed systems into the multistatic network

Tim Brock, Capability Manager, Ultra Maritime
ULTRA MARITIME

1445 - New generation vessels for mine & seabed warfare

- Innovation – unique technological characteristics of platforms
- Leverage of MUS – unmanned when you can, manned when you must
- Experimental test campaign

INTERMARINE SpA


1515 - Challenges and prospects for the development of NATO ships

- Strengthening the NATO Armed Forces' damage control capabilities
- Innovative approaches to delivering capability through commercial means
- Trends and opportunities for collaboration and details on NATO's 'Clean Energy Agenda'

Rafael Arcos, Deputy Director Operations, NATO Support and Procurement Agency (NSPA)



1515 - Royal Netherlands Navy replacement and modernisation programme

- An overview of current and upcoming programmes within Command Materiel and IT
- Innovative technical solutions for modern day challenges
- Challenges for COMMIT, the Royal Netherlands Navy and industry in the near future

Captain Andre van der Kamp, Head of Naval Projects, Netherlands Armed Forces, Defence Materiel Agency (COMMIT)



1515 - Accelerating AI adoption across the spectrum

- Core areas: Fire chains, SA, autonomy, mission planning, logistics and processes
- Establishment of the Naval AI Cell (NAIC) and its pathfinder projects
- Timeline for trials and evaluation

Captain Keith Taylor, Navy Develop - Head of Digital and C5ISR, Royal Navy


1515 - Update on the Italian U212 Near Future Submarine programme

- Development of novel modular systems for the NFS
- On the horizon technologies
- Over the horizon needs and technological challenges for future integration

Commander Stefano Oliva, Section Head Submarine Research, Development and Doctrine Department, Italian Navy


1515 - Considerations for ASW frigate launched unmanned surface vehicle for ASW

- Requirements for flexible mission sets and increased endurance of USVs
- Design considerations for interoperability and future-proofing
- Launch and recovery systems for unmanned surface vehicles

Commander Paul Dröge, Branch Head - Underwater Warfare Technology, Netherlands MoD


1515 - Seabed and mine warfare: Italian Navy's perspective

- Monitoring and protecting UW areas in the Mediterranean
- Systems integrating the network of sensors, platforms, and agencies in collaborative working
- The R&D effort to provide technology solutions

Lieutenant Commander Stefano Canarutto, Mine Warfare Specialist, Italian Navy


1545 - Afternoon coffee and networking
MAN Energy Solutions SE



Day Two: Wednesday 22nd May 2024

FUTURE PROOF SHIPBUILDING

Navies are beginning to look to the future and are trying to identify what ship requirements will be in ten years time. This session looks at the plans and investment in naval strategy and goes into detail on some of the programmes looking to be future ready.

1630 - Collaborative approaches in developing support ship programmes

- Designing the replenishment at sea systems for FSS
- How the operational requirements shaped the design chosen
- Future operations for supplying the fleet

Commodore David Eagles,
Commander, **Royal Fleet Auxiliary**



MISSION MODULARITY

From enhancing operational flexibility to preparing for power hungry sensors, modern communication systems and high-tech equipment, nations now are looking even further ahead to anticipate new threats and enable better modularity.

1630 - Surface fleet disaggregation; sense, decide and effect

- Adopting a system of systems approach
- Increasing availability and removing single points of vulnerability
- Breaking the link between platforms and capabilities – reworking the traditional model

Andy Mitchell, Navy Develop - Capability Sponsor, **Royal Navy**



NAVIGATION SOLUTIONS

Gone are the days where the military led industry in the development of technical solutions. Navies are using and exploiting commercial off-the-shelf solutions (COTS) to remain a battle winning force.

1630 - Maritime security challenges faced by the shipping industry

- Military answers to shipping industry challenges
- How information sharing is critical to MDA and how the French MICA centre contributes to it
- Case study: The Gulf of Aden

Commander Eric Jaslin,
Commanding Officer, **Maritime Information Cooperation and Awareness (MICA) Centre**



SUBMARINE SAFETY & ESCAPE

Escape & rescue is fraught with challenges. This section of the agenda will discuss E&R programs that are currently operational and provide insight into their challenges and successes.

1630 - UK Submarine Escape and Rescue developments and medical triage

- Implementing lessons from operations and exercises to ensure credible rescue capability
- Rescue and Intervention system developments
- Medical triage changes in sea-rescue situations

Warrant Officer 1 Ian Brown,
SMERAS Head of Training, **Royal Navy**



DELIVERING KINETIC EFFECT

There is a plethora of new ammunition options including new torpedoes, enhanced surface sonar processing and increasingly complex intelligence collection platforms that aid delivering kinetic effects. This session will explore new technologies.

1630 - Special underwater operations

- Tackling complex tasks in difficult UW environments
- Coordinating Surface, Air and UW assets, including MUM-T and Mission Systems for UxVs
- Challenges for integrating distributed forces and generating common operational picture

Lieutenant Commander Kara Wansbury RAN, Submarine Littoral Warfare SO2 - Operational Advantage Centre, **Royal Navy**



ENABLING RAPID ACQUISITION

There is a huge drive for nations to adapt faster to technological developments. Priorities include collaboration, streamlined and agile acquisition processes and flexible contracting. This session will explore these in detail.

1630 - Accelerating the deployment of MAS: the new UK DE&S centre of expertise

- Growing demand for UK MAS and increased portfolio focus on opportunities and challenges
- Supporting the UK uncrewed Systems strategy for maritime
- Delivering a common commercial approach for the acquisition and support of MAS

Bill Biggs, Maritime Autonomous Systems centre of Expertise – Lead & **Andy Liddell,** Head of SALMO, **UK MoD DE&S**



1700 - Driving operational advantage in a net zero future

- Leveraging BMTs pedigree in naval auxiliary vessel designs, Tide & FSS, and large vessels, QEC, to support the energy transition
- Drawing upon the breadth of capabilities and innovation that is a key part of the BMT identity
- The BMT Floating Nuclear Production Ship (FNPS) concept is introduced to support the naval energy transition with the benefit of increasing operational advantage

Dr Thomas Beard CEng, Clean Shipping Lead, **BMT**



1700 - The next generation of Sea Mine Laying

- Providing fleets next generation Sea Mine Laying capabilities
- Sea Mine laying from future unmanned platforms
- Optimising logistics ashore and handling at sea

SH Defence

1700 - A comprehensive optronics solution against emerging threats

- Preparing for new threats such as ASBMs and kamikaze USVs
- Detecting and identifying threats early on to prepare the right response: Hard kill and soft kill
- Safran's OmniSight/Omniguard solution: Tackling the challenge by providing a full solution from detection, to identification and engagement with a single operator, assisted by AI

Yannick Hontarrede, Safran Electronics & Defense



1700 - Exploring intuitive mission systems for greater rescue capacity

- Growing importance of connectivity aboard submarines for image/data dissemination
- The challenges and future of ensuring usable mission systems, including atmospheric monitoring
- Investing for the future: How will machine learning and automation enhance performance

Davide D'Alessio, Defence System Designer Coordinator, **DRASS**



1700 - Kinetic solutions for underwater threats

- Framing the problem: USVs/threats to trade waterways
- Science of supercavitation
- Explanation of DSG munitions

DSG Technology USA Inc
















1700 - Advanced mine detection using aerial drone magnetic gradiometry

- Aerial drone magnetic solutions offer rapid and safe detection of underwater mines
- Critical system parameters determine the detection capabilities and efficiency of a system
- Introduction to the V2MAG™ tactical drone magnetic solution for underwater mine detection

Arne Døssing Andreasen, CEO, **UMAG Solutions**



Day Two: Wednesday 22nd May 2024

| | | | | | |
|---|---|--|--|--|---|
| <p>1730 - Future French Carrier: Challenge and opportunity</p> <ul style="list-style-type: none">• A carrier: What else?• The road to 2038: FFC timeline• FFC envisioned capabilities and why do we want these? <p>Captain Alban LeDuc, Future French Carrier Programme Officer, French Navy</p>  | <p>1730 - Defining the next generation of combatants</p> <ul style="list-style-type: none">• Opportunities for international collaboration• Cooperation among navies and the defence industry EU framework• PESCO 4E (Essential elements of European escorts) <p>Captain Isidro Carrara, Head of Capabilities Development Section, Plans and Policy Division, Spanish Navy</p>  | <p>1730 - Harnessing technology to improve readiness</p> <ul style="list-style-type: none">• Exploring new initiatives in FMS• Reducing risk and improving fleet readiness• Cost-effective improvements within the air domain <p>Scott Kuhns, PMA272 International Programme Manager, NAVAIR SYSCOM Security Cooperation Office</p>  | <p>1730 - Disabled submarine search and localisation through uncrewed vehicles</p> <ul style="list-style-type: none">• Rescue system modernisation• Adaptation methodologies of rescue systems to anchor handling vessels (AHTS)• Improvements to air deployability of rescue systems <p>Lieutenant Commander Nick Samuels, Operations Officer, ISMERLO</p>  | <p>1730 - Delivering lethal effects in the UW battlespace</p> <ul style="list-style-type: none">• Enhancing UW systems for increased lethality• Developments in ASW and UWW in the Pakistan Navy• Communication and sensors <p>Vice Admiral Muhammad Faisal Abbasi, Commander Pakistan Fleet, Pakistan Navy</p>  | <p>1730 - Autonomous technologies enabling persistent UW surveillance</p> <ul style="list-style-type: none">• Developing our understanding of the operating environment• Novel sensing using networked infrastructure for hyper-fast communications• Next steps for ensuring safety during transition to extensive autonomous operations <p>Huw Gullick, Associate Director Innovation, National Oceanography Centre</p>  |
| <p>1800 - <i>Chairman's closing remarks</i></p> <p>Rear Admiral (Ret'd) Massimo Esposito, Former Branch Head and Military Assistant at the Italian Military Delegation, NATO HQ</p>   | <p>1800 - <i>Chairman's closing remarks</i></p> <p>Vice Admiral (Ret'd) Manuel Martinez Ruiz, Former Director Naval Engineering and Construction, Spanish Navy</p>  | <p>1800 - <i>Chairman's closing remarks</i></p> <p>Elissa Trueman PhD, Deputy Chief Technology Officer, US Navy Naval Surface Warfare Centre</p>  | <p>1800 - <i>Chairman's closing remarks</i></p> <p>Vice Admiral (Ret'd) Jeffrey Trussler, Former Deputy Chief of the Naval Operations for Information Warfare, US Navy</p>  | <p>1800 - <i>Chairman's closing remarks</i></p> <p>Commodore (Ret'd) David Burton, Director, NATO ASW Barrier Programme</p>  | <p>1800 - <i>Chairman's closing remarks</i></p> <p>Vice Admiral (Ret'd) Duncan Potts CB, Former Commander UK Maritime Forces, Royal Navy</p>  |

1800 - Evening drinks reception
SPONSORSHIP AVAILABLE





















1930 Carriages

1945 Hall Close

0615 - Morning run
SPONSORSHIP AVAILABLE

0800 - Registration
Hosted by Babcock
babcock™

0800 - Morning coffee
SPONSORSHIP AVAILABLE

| FUTURE SURFACE FLEET A | FUTURE SURFACE FLEET B | SURFACE FLEET TECHNOLOGY | SUBMARINE TECHNOLOGY | UNDERWATER DEFENCE & SECURITY A | UNDERWATER DEFENCE & SECURITY B |
|--|---|---|---|---|---|
| <p>In association with Sairdron Inc</p>  | <p>In association with Leonardo</p>  | <p>In association with IAI</p>  | <p>In association with Thales</p>  | <p>In association with Anduril</p>  | <p>In association with Exail</p>  |
| <p>EFFECTIVE INTEGRATION OF OFF-BOARD SYSTEMS</p> <p><i>As threats increase, navies are looking to incorporate both crewed and uncrewed assets into the fleet. This session will include a number of briefs explaining some of the challenges and successes in this and how the plan to develop this for the future.</i></p> <p>0850 - Chairman's opening remarks Rear Admiral (Ret'd) Massimo Esposito, Former Branch Head and Military Assistant at the Italian Military Delegation, NATO HQ </p> <p>0900 - Future operational energy in the maritime domain</p> <ul style="list-style-type: none">● Maintaining operational advantage during the global energy transition● Opportunities, risks and decision points● Future operational energy with a system of systems approach <p>Commander Francis Griffiths, SO1 Platform Capability Sponsor, Develop Directorate, Royal Navy </p> | <p>DEVELOPING A FORCE'S EFFICIENCY</p> <p><i>To remain efficient and mission capable during deployment, we must be prepared to make necessary developments. This session will discuss some adaptations to naval forces when it comes to being 'mission-ready'.</i></p> <p>0850 - Chairman's opening remarks Vice Admiral (Ret'd) Manuel Martinez Ruiz, Former Director Naval Engineering and Construction, Spanish Navy </p> <p>0900 - The vital role of security and defence in the Arabian Sea and Indian Ocean</p> <ul style="list-style-type: none">● An overview of the Pakistan Navy● Current and future plans for navy procurement● How the navy are looking to modernise in both surface and underwater domains <p>Major General (Army) Muhammad Ejaz Mirza HI (M), Director General Defence Purchase, Pakistan MoD Production </p> | <p>CYBER AND ELECTRONIC WARFARE</p> <p><i>Maintaining an effective, safe and operational capability is a task enabled by dominating the electromagnetic spectrum (EMS). This section will focus on what solutions are available to give nations the edge in their endeavours.</i></p> <p>0850 - Chairman's opening remarks Elissa Trueman PhD, Deputy Chief Technology Officer, US Navy Naval Surface Warfare Centre </p> <p>0900 - The use of EW to enhance support to surface operations</p> <ul style="list-style-type: none">● Developing EW against threats● Improving on previous systems used by the navies in EW● Taking advantage of new innovations and technologies in internal mission systems <p>Neil Clelland, Senior Principal Scientist - Project Technical Authority Maritime EW Programme, UK Dstl </p> | <p>FUTURE SUBMARINE OPERATIONS</p> <p><i>The ocean is becoming increasingly transparent with numbers of traditional submarine platforms growing as well as a huge increase in smaller uncrewed systems acting as a force multiplier. As a result operations underwater are becoming increasingly complex to navigate.</i></p> <p>0850 - Chairman's opening remarks Vice Admiral (Ret'd) Jeffrey Trussler, Former Deputy Chief of the Naval Operations for Information Warfare, US Navy </p> <p>0900 - Dominating in the underwater domain</p> <ul style="list-style-type: none">● Unparalleled intelligence, surveillance and reconnaissance capabilities - AI enhanced systems● Achieving flawless interoperability between naval assets for effective joint operation● Extending operational range and endurance of future submarine platforms Virginia and Collins class platforms <p>Vice Admiral Rob Gaucher, Commander Submarine Forces, US Navy </p> | <p>MARITIME MISSION AUTONOMY</p> <p><i>Off board, remote, uncrewed and autonomous technology present opportunities to either supplement or replace conventional systems and increase capabilities. This session will analyse options and consider their potential impact on the underwater battlespace.</i></p> <p>0850 - Chairman's opening remarks Commodore (Ret'd) David Burton, Director, NATO ASW Barrier Programme </p> <p>0900 - Supporting international interchangeability of UxVs</p> <ul style="list-style-type: none">● Enhancing mission management systems through AI enabled tools● Interchangeability standards and human autonomy teaming● Employing uncrewed systems to extend effective wide area situational awareness <p>Dr Craig Sawyer, Chairman for Maritime Unmanned Systems Initiative, NATO </p> | <p>MULTI-SPECTRAL MCM SENSORS</p> <p><i>Whether ship-mounted or UxVs; sensors are becoming increasingly important as navies vie for control of the underwater space. Maximising accuracy and reliability is a priority to minimise the sensor - shooter timeline and increase the pace and scale of MCM operations.</i></p> <p>0850 - Chairman's opening remarks Vice Admiral (Ret'd) Duncan Potts CB, Former Commander UK Maritime Forces, Royal Navy </p> <p>0900 - Maintaining warfighting advantage in MW for the current and future fleet</p> <ul style="list-style-type: none">● MCM mission package development towards IOC● Technical solutions to tactical problems in mine warfare● Capability introduction roadmap and supporting fleet introduction <p>Captain Scott Hattaway, Director Mine Countermeasure Technical Division US Navy SMWDC </p> |

Day Three: Thursday 23rd May 2024

0930 - Providing persistent multi domain awareness with minimal carbon footprint

- Purpose-built defence and security payloads for accurate, dynamic, and confident decisions
- Delivering surface and undersea intelligence for a range of high-priority applications
- Harnessing wind and solar energy to enable long-range, long-endurance coverage whilst reducing carbon impact

Captain (Ret'd) Andrew Hertel, Director Navy Programmes & Matthew Woody, Director Business Development, Sairdrones Inc



1000 - Surface uncrewed systems and the role of autonomy's effect

- Current use of unmanned systems in the surface world
- How this technology is evolving and what it can bring to the navy
- Future concepts and usage of autonomy & AI

Dr Craig Sawyer, Disruptive Capabilities Office Technical Director, US Navy



0930 - Leonardo's airborne, surface and underwater capabilities: From awareness to reaction

- From airborne data to information
- Underwater information gathering
- Small calibre defence systems

Nicola Toniuzzi, Head of Product Sales Support and Partnership - Airborne Systems and Mission Systems, Electronics Division, Leonardo



1000 - The future of support-ships and their role in tomorrow's navy

- How future operations could be affected by limitations in naval support
- Interoperability for replenishment at sea
- Balancing affordability with capabilities to support modern platforms

Commander James Angel, Deputy Commodore, Military Sealift Command Europe and Africa, Task Force 63, US Navy



0930 - Asymmetric warfare: Capability through modularity

- Understanding the dilemma – current Black Sea and Red Sea conflicts as benchmarks
- What does the future look like?
- Matching capability to task through modular systems

Malcolm McKenzie MBE, Director Maritime, Israel Aerospace Industries



1000 - Developments in human-autonomy teaming for maritime cybersecurity resilience

- Research and engagement opportunities with cyber-SHIP
- Equipping the maritime sector for cyber resilience
- Challenges and opportunities for autonomy in the future of naval platforms

Chloe Rowland, Maritime Cyber Projects and Key Partner Relationships Manager

Juan Dorje Palbar Misas, Maritime Cybersecurity PhD Candidate and Associate Lecturer, Cyber-SHIP and CROWN Labs, University of Plymouth



0930 - Decision superiority – Exploiting AI and sensor integration in the underwater battlespace to enable operational advantage for the next generation submariner

- How the Thales Group is exploiting AI/SI for defence and civil applications
- How AI/SI can be exploited in the subsurface domain
- Opportunities for collaboration within the ecosystem

Andy Marlor, Sector Director - Future Capabilities

Andrew Parmley, Head of Algorithms & Processing, Thales



1000 - Titan submarine: challenges of UW search and recovery

- C2 challenges in underwater search and rescue
- Building and running a multidisciplinary international HQ
- Developing systems and trust rapidly for effective SAR operations

Captain Marc Sennick, Chief of External Affairs - First Coast Guard District, US Coast Guard



0930 - Current AUV procurement is too slow to secure the UWB

- Threat context requiring a change of pace and approach in fielding quality AUV technology
- Dull, Dirty, Dangerous missions suit AUVs and optimise scarce submarine assets
- Speeding insertion and adoption

Anduril Industries UK



1000 - Maritime unmanned systems force integration

- Ongoing challenges with torpedo threat to submarines
- Development of specialised missiles deployed from submarines
- Research priorities and opportunities to increase detection times and assist submarine evasion

Commander James Schnadhorst, Staff Officer - ASW Surface, NATO Allied Maritime Command



0930 - UMISAS: the next generation synthetic aperture sonar for UxV-based mine hunting

- High performance sonars suited for unmanned systems
- Robust operation in harsh environments
- Convergence of mine hunting and hydrography

Exail



1000 - Future role of AUVs in building maritime situational awareness and offensive activities

- Integrating AUVs into joint scenarios, ship/ship and ship/heli operations
- Accelerating the locate/track/attack chain
- Combined data processing for advanced evaluation

Johan Wahren, Project Manager Underwater Warfare Weapon Systems, Swedish Defence Materiel Administration (FMV)



1030 - Morning coffee and networking

Hosted by FERNANDEZ JOVE COMERCIAL E INGENIERIA, SL



Day Three: Thursday 23rd May 2024

SHIP BUILDING PROGRAMMES

The past 2 days have shown the importance of more reactive ship programmes that can be adapted as threats evolve. This session will explore increasing efficiencies in this area, such as cost-effective ship building and in the requirements setting stage.

1115 - The Hellenic Navy's modernisation plan

- An overview of the Hellenic Navy fleet modernisation plan
- Frigate programme update
- The challenges in delivering a multi-mission ship to the fleet

Commodore Panagiotis Karavas, Deputy Armaments Director and Surface Programmes Director, Hellenic Navy



1145 - A considered view on the urgent need for transatlantic collaboration in shipbuilding

- A new transatlantic leader in arctic shipbuilding
- The Asterix model for the rapid introduction of new capabilities
- Davie's maritime portfolio

James Davies, President, DAVIE Shipyard

DAVIE

DEVELOPING SHIP DESIGN

From meeting the need to enhance operational flexibility to modern communication systems and high-tech combat suites, nations now are looking even further ahead to design fleets that can combat a range of environments.

1115 - Swedish Navy procurements: What to expect and how to be involved

- An overview of the Swedish FMV and what the Naval Systems Division is responsible for
- Update on surface and underwater programmes
- Bringing together specialists in technology

Rear Admiral Fredrik Lindén, Director Naval Systems Division, Swedish Defence Materiel Administration (FMV)



1145 - Revolutionising future ship design to maximise exploitation

- Enhanced autonomy & human-machine teaming
- Efficient and effective use of complex and growing data & information sets
- Enabling faster, higher quality and more informed decisions using artificial intelligence (AI)

Rear Admiral Torben Mikkelsen, Director Naval Warfare, Danish Defence Command



ADVANCING WEAPON SYSTEMS

Combat systems are defined from the very beginning of a vessel's life and it is imperative these systems can meet modern threats. This section sets out to look at the work nations are doing when it comes to ship weapons.

1115 - French Navy combat systems: Now and in the coming decades

- Current combat systems in the French Navy and short term plans
- Challenges to step forward
- The future combat systems of the French Navy

Commander Florentin Dhellemmes, Combat System Programme Officer, French Navy



1145 - Stabilised weapon mounts: Options for optimised performance on platforms in motion

- Benefits and constraints of remote vs crew-served machine gun mounts
- Discussion of stabilising crew-served weapons
- Relative costs, accuracy and lethality of remote vs crew-served machine gun mounts

Clay Wild, Vice President, International Business Development, Flex Force Enterprises



FUTURE SUBMARINE REQUIREMENTS

Building alliance capability and capacity is a priority and this is driving significant investment in technology and innovation. More important is ensuring that safety, tactics and doctrine keep pace to maintain a cutting edge ASW capability

1115 - The Italian Navy's comprehensive approach to a Submarine in distress: New rescue system - new challenges

- New deployable Submarine Rescue System - SRS
- ROV systems capable of 3 km depths
- Maximising crew survivability during rescue missions

Commander Gennaro Vitagliano, Chief of the Submarine Escape and Rescue Office, Italian Navy



1145 - Underwater awareness and certification of systems – back to the future

- The underwater scenario
- Our approach to UW awareness and upcoming challenges
- Back to the future

DNV



ENABLING A COMMON OPERATING PICTURE

Building alliance capability and capacity is a priority and this is driving significant investment in technology and innovation. More important is ensuring that tactics and doctrine keep pace to maintain a cutting edge ASW capability

1115 - Multi-sensor data fusion & integration of space-based data

- Utilising space for maritime situational awareness
- Robustness and reliability for demanding and dynamic combat environments
- Ensuring ease of integration into combat and navigation systems

Commander [GER-N] Patrick O'Keeffe, Staff Officer - Space Operations, NATO CoE for Operations in Confined and Shallow Waters



1145 - Advances in underwater sensing in the commercial offshore market

- Key challenges in the underwater environment and growing offshore energy requirements
- Imagine, sensing, communications and marine autonomy technologies
- Applying lessons from the commercial offshore sector to defence problems

Nick Swift, Honorary Secretary, Society for Underwater Technology



NEXT GENERATION MINE DISPOSAL

A new generation of powerful modular mine neutralisation systems with multi-shot capability will revolutionise MCM lowering mission costs and increasing speeds. However these systems must be robust enough to overcome increasingly resistant mines

1115 - Integrating naval mine countermeasures systems; from planning to evaluation

- NMCM risk mapping; applying data analysis to determine acceptable mission risk
- Technological innovations in NMCM command and control
- NMCM data fusion; big data analysis, data exploitation, and improvement of decision-making algorithms and tactical procedures

Commander Hans van IJzerloo, SME Concept Development and Experimentation, NATO Naval Mine Warfare Centre of Excellence



1145 - Expanding MCM capabilities using novel commercial sensors and solutions

- Forward looking sonar solutions
- Advanced algorithms and processing platforms
- Presentation of results from recent trials

Teledyne Marine




Day Three: Thursday 23rd May 2024

1215 - Update on Polish Navy modernisation

- Current operational situation
- Future plans and how this will shape the fleet
- Opportunities for allied/industry activities


Rear Admiral Włodzimierz Kułagin, Head of the Armament Division, Polish Ministry of Defence



1215 - Naval industry contribution to national development

- Peru's mission, vision and our scenery
- Main threats and challenges
- Construction of a modern naval force in accordance with new challenges


Rear Admiral Belisario Zagazeta, Director Naval Projects, Peruvian Navy



1215 - Combat systems ‘SecDevOps: A vision for deliverable through-life acquisition and support at pace

- Challenges of the current equipment acquisition and support model
- Options for overcoming the ‘valley of death’ and ‘feast to famine’
- Delivering the ‘SecDevOps’ mindset in the combat systems enterprise


Commodore Phil Game, Head of Maritime Combat Systems, DE&S Ships Domain



1215 - Walrus-class replacement program

- Overview of the RNLN's next generation diesel-electric submarines
- Optimising designs to maximise future submarine warfighting capabilities
- Future innovations in systems to increase effectiveness


Captain Jeroen van Zanten, Commander Submarines, Royal Netherlands Navy



1215 - Supporting ASW and amphibious operations using MUS

- Using MUS for rapid environmental assessment of the theatre of operations
- Evaluating future concepts for using MUS
- Understanding effects of the environment on operations

Commander Gustavo Gómez, Deputy Director, NATO MGEOMETOC Centre of Excellence




1215 - MCMV regeneration: upgrading sensors, launch and recovery capabilities

- Improved hull-mounted wideband minehunting sonar
- Interoperable minehunting command and control system
- Combining conventional and autonomous MCM systems


Lieutenant Vytautas Drejeris, MCMV Commanding Officer, Lithuanian Navy




1245 - Chairman’s closing remarks
Rear Admiral (Ret’d) Massimo Esposito, Former Branch Head and Military Assistant at the Italian Military Delegation, NATO HQ




1245 - Chairman’s closing remarks
Vice Admiral (Ret’d) Manuel Martinez Ruiz, Former Director Naval Engineering and Construction, Spanish Navy




1245 - Chairman’s closing remarks
Elissa Trueman PhD, Deputy Chief Technology Officer, US Navy Naval Surface Warfare Centre




1245 - Chairman’s closing remarks
Vice Admiral (Ret’d) Jeffrey Trussler, Former Deputy Chief of the Naval Operations for Information Warfare, US Navy



1245 - Chairman’s closing remarks
Commodore (Ret’d) David Burton, Director, NATO ASW Barrier Programme












1245 - Chairman’s closing remarks
Vice Admiral (Ret’d) Duncan Potts CB, Former Commander UK Maritime Forces, Royal Navy



1245 - Underwater zone lunch and networking
SPONSORSHIP AVAILABLE

1245 - Underwater zone lunch and networking
Hosted by Valmet



| <div>SURFACE KEYNOTE</div> <div>Location: FSF Theatres</div> | <div>SUBSURFACE KEYNOTE</div> <div>Location: UDS Theatres</div> |
|---|--|
| <div>THE FUTURE OF SHIPBUILDING PROGRAMMES</div> <div>Canada, Spain, Netherlands, Italy, Norway, Germany, Norway, France, Turkey, Poland, the UK and the US are all running significant ship projects. Over the past three days we have seen that some nations will galvanise surface capabilities, sometimes by themselves, other times as part of a collaboration. Whether it is a large build or small boat acquisition, the final session will include current and future case studies for countries to learn from and utilise the lessons.</div> <div>1345 - Recapitalising the Australian Navy</div> <div><div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div>The Australian Navy's 2030 program</div><div>Selecting the design of the Sea5000 project</div><div>How the requirements have shaped the design taken</div></div></div> <div>Rear Admiral Stephen Hughes, Head Navy Capability, Royal Australian Navy</div> <div></div> <div>1415 - Keeping the fleet fighting: Key goals for delivering naval effect and solving warfare challenges</div> <div><div><div>Commercial vs naval operational readiness rates: Why the difference and how to close the gap</div><div>What are the contract limitations holding these levels down</div><div>Key themes from our navy that will help our fleet moving forwards</div></div></div> <div>Navantia S.A, S.M.E</div> <div></div> <div>1445 - Ensuring the naval force is ready to meet the capabilities of a modern navy</div> <div><div><div>Harnessing innovations on emerging systems</div><div>The transformation of the RN and maintaining readiness throughout</div><div>Uncrewed systems: How might we need to adapt requirements going forward</div></div></div> <div>Rear Admiral James Parkin CBE, Director Develop, Royal Navy</div> <div></div> <div>1515 - Chairman's closing remarks</div> <div>Vice Admiral (Ret'd) Duncan Potts CB, Former Commander UK Maritime Forces, Royal Navy</div> <div></div> | <div>INTERNATIONAL COLLABORATION: SSN-AUKUS, THE NEXT GENERATION OF SUBMARINE</div> <div>Pillar 1 of the trilateral AUKUS agreement will see unprecedented collaboration in the development of cutting edge submarines, strengthening undersea capabilities, enhancing deterrence and countering the influence of adversaries worldwide. Creating a new conventionally-armed nuclear-powered attack submarine, equipped for intelligence, surveillance, undersea warfare and strike missions that will be a game-changer in underwater warfare. As well as delivering a formidable defence capability, this new era of military technology sharing presents opportunities for the submarine industrial base across the UK, US and Australia.</div> <div>1345 - Commercial challenges and opportunities, building industrial capability</div> <div><div><div>Combat cloud principles and challenges</div><div>Use case of the combat cloud in amphibious operations</div><div>Disruptive technologies as force multiplier</div></div></div> <div>Northrop Grumman</div> <div></div> <div>1415 - Panel discussion: Unlocking the potential for future submarines</div> <div>Keith Beckett, Technical Director and Deputy CEO, UK MoD - Submarine Delivery Agency</div> <div></div> <div>Commodore Allison Norris, Director Submarine Enterprise, Australian Submarine Agency</div> <div></div> <div>Rear Admiral (Ret'd) Michael Jabaley, Special Assistant (AUKUS) to UNSECNAV, US Navy</div> <div></div> <div>1515 - Chairman's closing remarks</div> <div>Vice Admiral (Ret'd) Jeffrey Trussler, Former Deputy Chief of the Naval Operations for Information Warfare, US Navy</div> <div></div> |

1520 - CLOSE OF CONFERENCE