“Whoever can hold the sea, has command of everything.”

Themistocles (524–460 B.C.)
AGENDA

What We Do
Legacy MCM Systems
Transition Overview
Expeditionary and Modular MCM Systems
LCS MCM MP Systems
The Way Forward

UNCLASS
MIW Operational and Fleet Support

- Global Mine Warfare Commander
  - Deployable Battle Staff
  - Theater Operations and Plans
  - Intelligence analysis
- MCM Force training / certification
- MIW capability / capacity assessments
- IPCL and State of MIW reports
- Doctrine and Tactical Development

Fleet Testing and Experimentation
- FLEX (Fleet Experimentation)
- Wargame Support
- Tactical System Integration Doctrine
- UONS System Testing
- Joint Capability Technology Demos
- Wargaming
- MIW Readiness and Effectiveness Measuring (MIREM)
MIW WTI Training Continuum

- Commence WTI training 05 August 2019
  - 32-week syllabus. Majority of training (21 weeks) conducted at the NATO Naval Mine warfare School in Belgium
  - Integration Training with SMWDC AMW division and AMCM/UMCM to understand natural linkages and aid in planning/execution

- As we look to sundown our legacy systems, as warriors, teachers, and thinkers, MIW WTIs will help shape the future of MIW operations
  - LCS-Centric Operations
  - ExMCM Company and UUVs operating from AFSB or vessel of Opportunity
  - MH-60S and ALMDS/AMNS
  - Mining

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<th>MIW WTI TRAINING PIPELINE</th>
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SMWDC COURSE | SMWDC MIW COURSE | NATO COURSE

Leveraging NATO Expertise to Build the Future of MIW
Legacy MCM Systems

- 11 Avenger Class MCMs
  - SQQ-32 VDS Sonar
  - SLQ-48 MNS
  - Acoustic/Magnetic Influence Sweep

- 29 MH-53 Helicopters
  - Q-24 Towed Sonar
  - Mechanical / Acoustic / Magnetic Influence Sweep
  - SeaFox MNS

- EOD Divers
US Navy MCM is currently undergoing a sea-change

Sundown of Legacy Systems

Avenger Class decommissioning

MH-53 approaching flight-hour limits

End of life servicing issues

Final Developmental Testing of MCM Mission Package Systems for LCS

Building Expeditionary MCM (ExMCM) Capability
<table>
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<tr>
<th>SEARCH and LOCALIZE</th>
<th>MCM-USV with AQS-20A Sonar</th>
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<tr>
<td>Airborne Laser Mine Detection System (ALMDS)</td>
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<td>Surface Mine Countermeasures Unmanned Underwater Vehicle with LFBB (SMCM-UUV) aka Knifefish</td>
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<td>Vertical Takeoff Unmanned Air Vehicle (VTUAV) Coastal Battlefield Reconnaissance &amp; Analysis (COBRA)</td>
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<td>Airborne Mine Neutralization System (AMNS)</td>
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<td>NEUTRALIZE</td>
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<td>MCM USV with Unmanned Influence Sweep System (UISS)</td>
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ExMCM Company Capability

EOD Unmanned Systems Platoon

- Mine Hunting
- Amphibious Support
- Intelligence Collection
- Reconnaissance

Post-Mission Analysis Cell

- Sonar Data Analysis
- Data Fusion
- Mission Reports

EOD MCM Platoon

- Mine Neutralization
- Ordnance Disposal
- Dive and Air insert capable
Mk18 Mod2

- **Capability:**
  - Large area coverage / OTH
  - High Ao
  - High Resolution Synthetic Aperture Side Scan and Forward Looking Sonars

- **Characteristics:**
  - **Weight:** ~600lbs
  - **Battery Type:** Lithium-ion
  - **Endurance:** 20 hrs
  - **Speed:** 0.5 to 4.5 kts
  - **Max Depth:** 600 m
Adaptive Force Packages

• Modular MCM Concept
  – Expeditionary MCM Companies
  – MCM Mission Package Systems

• Deployable from variety of vessels of opportunity
  – Expeditionary Support Base ships
  – Fleet Auxiliaries (US and Coalition)
  – Amphibious Ships
  – Ashore

UNCLASS
The Way Forward
Where Can Industry Help?

• **Speed up the timeline**
  – In stride / OTH communication
  – Automatic Target Recognition
  – Single Sortie DTE
  – Data Handling

• **Expeditionary MCM**
  – Self contained capabilities hosted on multiple platforms
  – Integrate into LCS and ESB
  – Improved VSW Capability
  – Improved Modularity- small, agile, flexible

• **Denied Environments**
  – Positioning, Navigation, Timing
  – Comms resilience

• **Seamless Interoperability**
  – Multiple Coalition Partners
  – Data Transfer
  – Interoperable Planning Tool

• **UxVs / ROVs**
  – Improving the sensors
  – Reducing Signatures
  – Improved and Networked Autonomy, Sensing, Cueing
MCM Interoperability enhances MCM Operations

MCM Systems and Data must be developed, classified, and formatted for sharing with Coalition partners

- Interoperable and compatible equipment and software
- Small, Agile, Flexible Systems and Plans
- Reliance on Coalition only goes so far
- Availability and Capability must be carefully weighed.
Conclusion

• Specific Gaps in 2019 MIW IPCL and State of MIW
  – Supporting Tasks - capabilities, not systems
  – Near Term Solutions
  – S&T Focused List

  – Available on NWDC MIW SIPR SharePoint site

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It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change.
Thank You

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