Mine Warfare Update

NDIA Expeditionary Warfare

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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 tactics

Fleet Testing and Experimentation
- FLEX (Fleet Experimentation)
- Wargame Support
- Tactical System Integration Doctrine
- UONS System Testing
- Joint Capability Technology Demo’s
- Wargaming
- MIW Readiness and Effectiveness Measuring (MIREM)
Transition to LCS-MCM

Retaining Legacy Forces until LCS is Ready
Where Can Industry Help?

- **MCM ISO Amphibious Operations**
  - VSW, SZ, and BZ environments
  - Interoperability between USMC and USN systems and equipment

- **MCM Timeline Reduction**
  - In-stride communication
  - Automatic Target Recognition (ATR)
  - Single sortie DTE

- **Expeditionary MCM**
  - Self contained capabilities hosted on multiple platforms
  - Networked from multiple platforms
  - Integrated into LCS
  - Address asymmetric threats
Where Can Industry Help?

- **UUVs / ROVs**
  - Improved Sensors
  - Reduced Signatures
  - Networked Autonomy
  - Power and Portability
  - Remote Launch, Recovery and Charging
  - Full DTE
  - Modular/Upgradable

- **GPS-Denied Environments**
  - Secondary Positioning

- **Interoperability**
  - Improved Data Transfer
  - Interoperable Planning Tools
  - Coalition Interoperable
**Vision**

Revolutionary operational concepts must be explored, underpinned by the latest in technological advances, creating a paradigm shift in warfighting, training and resourcing.

**Background**

- Mines affordable asymmetric equalizers
- MCM not getting easier for the US and allies
- Legacy MCM forces *approaching sundown*; LCS will provide *near-legacy* MCM approach.
- LCS/ESB modular design enables rapid integration of system-level innovation
- MCM conducted in a similar manner for 50+ years. Advances in tech must be explored to tip equation in our favor.

**Approach**

MCM_{next} to:

1) Establish a dialogue with leaders in industry, academia, government, and national labs
2) Leverage NPS
3) Advocate for S&T investment
4) Synthesize revolutionary concepts and enable existing and future technologies

MCM_{next} To Revolutionize the Approach to MCM
MCM Force in Transition

- Must Sustain the Legacy Force throughout Transition
- **C5F**
  - MK 18 Mod 2 UUV with SSAM and ATLAS
  - Minehunting USV Towing AQS-24B Sonar
  - Expeditionary MCM Company Units of Action
- **C7F**
  - MCM Assessment Events
  - Increase ExMCM Capacity
- **LCS MCM Mission Package System Integration**
  - ALMDS/AMNS/COBRA IOC’d
  - MCM USV Minehunting / Sweeping
  - Knifefish UUV for Buried Minehunting
- **Fleet Wide Expeditionary Integration**
  - ExMCM Company

MCM IS EVOLVING WITH EXPEDITIONARY ASSETS

UNCLASSIFIED
Future Capabilities

• Detection/Neutralization of Near-Surface Drifting/Oscillating Mines

• Single Sortie Detect-to-Engage (DTE)

• Buried Mine Neutralization

• Automation for UxV-Based MCM

• Advanced Mining Concepts