U.S. Navy Funding Goals for Future Mine Warfare Capability

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Bottom Line Up Front

- Navy committed to future MCM capability transition
- MIW resources are a small piece of the shrinking budgetary pie
- We can help with near-term initiatives – but can’t do everything
- We need to prioritize getting the right capability to the fleet soonest
Mine Countermeasures Roadmap

Legacy Fleet MCM Capability – Now Until 2020

- LSD w/ EOD
- LHD w/ 2 HM DETS
- MCM (4)

LCS w/ MCM Mission Package (Spiral Alpha) – 2020 and Beyond

- LCS w/ MH-60S

Field a Common Set of Unmanned, Modular MCM Mission Package Systems Employable from LCS that can Quickly Counter the Spectrum of Mines to Enable Assured Access with Minimum Risk from Mines

Manpower ~ 2,300 Sailors

Modeled ACRS is comparable

Manpower ~ 390 Sailors

Right Mix of Man and Technology For Effective Operations
Transition Challenge: Competing Requirements

**SEARCH**
MH-53E, MCMs, AQS-24A, SQQ-32 (HFWB)

**NEUTRALIZE**
MH-53E, MCMs, EMNS, EOD, Marine Mammals

**SWEEP**
MH-53E, MCMs, Mk-105, Mk-104, IAAG, AAG

VS.

MH-60S, LCS, ALMDS, AQS-20A, COBRA, UUV w/ LFBB, RNS, Mk-18 UUV

MH-60S, JABS, CMS, LCS, AMNS

MH-60S, LCS, USV, UISS, OASIS
MCM program maintains current capacity without MCM-1 ELSP and supports LCS-based MCM to relieve forward deployed forces by 2020.
The Mine Warfare Branch is responsible for both Mine Countermeasures (MCM) and Mining.

- Responsible for maintaining the current maritime mines in the Navy’s inventory.

- Actively exploring future offensive mining concepts to use mines in offensive, protective, and defensive roles.
Current Resource Environment

• PB12 is currently on “The Hill”
  – CR until 18NOV and No New Starts

• Navy PB12 TOA is $161.4B – increase of $0.8B from FY11
  – N85 slice of the pie is $6.2B – 4% of overall budget
  – N852 budget is approx $400M of N85’s budget

• Overall Mine Warfare budget is $722M
  – Includes current readiness and manpower accounts
  – 0.6% of Navy TOA – LCS SCN account excluded
    – BMD budget is approximately five times larger*
    – ASW budget is approximately four times larger*

• Still have the “Super Committee’s” decision to deal with
PB-12 Fiscal Overview
(Represents Funding Reported in FY12 MCM Certification Plan)

MIW Funding Ownership Breakout

N4 – Readiness
N88 – Air Warfare
N857 – EOD
N86 – Surface Warfare
ONR – S&T Funds
N852 – Mine Warfare
N2/6 – Info Dominance

MIW Funding APPN Breakout

RDTEN $M
OPN 113.5
WPN 12.2
OMN 190.8
S&T 87.6
APN 63.6
Total 722.3
Near Future MCM Challenges

- Sensor and Processing False Alarms
  - High False Alarms mean longer PMA & higher False Classification by PMA Operator

- Single Pass Detect to Engage
  - High False Alarms requires multiple passes to identify

- Computer Aided Detection (CAD)/Classification (CAC) Improvements
  - Potential for real-time algorithms in the MCM Community
  - Fast and accurate CAD/CAC capability needed for all PMA

- Reliability
  - System Reliability needs to meet requirements
    - Meet Operational Availability (Ao)
    - Improve Mean Time Between Operational Mission Failure (MTBOMF)
  - Require modular, open architecture systems that are supportable long term

- Mining
  - Stand-off delivery of mines
  - Remote Command and Control of mines
    - Distributed network of sensors in support of command and control
The Big Question: How good is good enough?

• How much better is the reduced performance future systems over present fielded systems?
  – Likely Performance of Future vs. Present Performance of Legacy

• Analyzing the present performance MCM MP systems to determine if they support Overarching LCS MCM MP KPPs.
  – Many Future MCM system requirements (ORDs) written well before LCS Concept—are they aligned?
  
  – Huge Effort, reliant on modeling (NMWS)
  
  – IF we are falling short in KPPs, namely Area Coverage Rate Sustained (ACRS), WHERE do we make improvements?

N85 assessing traceability of system requirements to MCM MP requirements
The mine threat is real and not getting easier.

The transition to LCS-based MCM is challenging…and innovative.

Decreasing TOA makes TOTAL OWNERSHIP COST a key driver.

But………system suitability and effectiveness still most important

Got a solution?
Contact CAPT Rios at mark.rios@navy.mil
Questions
• Greatest investment in the SW/DW
  - 33% of FY11 budget allocated to legacy systems
  - Decreases to ~20% by FY16 as LCS-based systems fielded
• Increased funding to the VSW zone
  - JABS Upgrade
  - UUV with LFBB
  - Potential COTS solutions

**Investments in SW/DW**
- Sustain Legacy Force and Deliver the Future
- Initiatives to Solve the VSW Problem Are Underway

**Increasing Investment in VSW**
in FY12 and out.
MIW Far-Term Vision

• Stop doing things “the old way”
  – Increased passive MCM through ISR, satellites, and IPOE

• Utilize Unmanned Undersea Vehicles (UUVs) and Unmanned Surface Vehicles (USVs)
  – Comms, endurance, and power generation/management issues inherent with UUVs/USVs must be resolved
  – Flexible, adaptable, open architecture design. Stovepipes removed.
    • Idea: A common powered-section that can be fitted with a mission-specific “front end” (e.g., minehunting, neutralization, or even minelaying)
    • Idea: Air-dropped UUVs for rapid reaction. Need robust design while adhering to weight & aircraft/helo integration

• Multiple, networked UUVs/USVs operating autonomously in suspected mine danger area
  – Full Detect-to-Engage capability in a single pass

Far-Term => Autonomous, Networked UUVs and Advanced Underwater Weapons
### Major PB-12 Adjustments

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<thead>
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<th>Program</th>
<th>ADDS</th>
<th>Program</th>
<th>TAKES</th>
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<td>RMS Add to OSD CAPE Estimate</td>
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<td>MCM MP Reduction</td>
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<td>AMNS WPN Reduction (EMNS)</td>
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<td>SMCM UUV Reduction</td>
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- Aligns resources (LCS ships and MP system)
- Slowed procurement and quantities of CN’s
- SMCM was bill payer for other MCM programs