
*18th NDIA Expeditionary Operations Conference*
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*OPNAV N952*

Overall Brief is: **UNCLASSIFIED**

# *Current Resource Environment*

- **No longer a linear Planning, Programming, Budgeting, Execution (PPBE) cycle**
- **PB14 budget is currently on "The Hill"**
  - Does not account for sequestration
  - Under Continuing Resolution until 15 Jan
- **Navy worked two different budgets for the POM 15 cycle**
  - T-POM and Alt-POM
  - MIW not immune to cuts
  - OMB/OSD will determine actual budget submission
- **Continued focus on improving current capability and delivery of LCS Mine Countermeasure Mission Package**
  - Improve/sustain legacy Fleet while delivering new capability but with limited resources

***Dynamic Environment Creates Uncertainty***

# *Recent Activity in MIW*

- **Four CONUS based MCM-1s deployed in C5F**
  - Two redeployed back to CONUS in Spring 2013 and two will return December 2013
- **USS PONCE – AFSB(I) deployed and remains in C5F until relieved**
- **Deployed MK-18 Mod 2 UUV's to C5F Jul 12 for User Operational Evaluation (ongoing)**
- **SQQ-32(V) 4 sonar with HFWB across the force (4 of 13 complete, 2 in progress)**
- **SeaFox**
  - Installed on 3 x MCM-1 ships in Bahrain
  - Delivered 3 x AMCM systems to C5F
  - Delivered 4 x Portable Mine Neutralization Systems to C5F for EOD UMCM Platoons
- **International Mine Countermeasures Exercises Sep 2012 and May 2013**
- **Permanently crewing 4 x MCMs in Bahrain approved and scheduled Spring 2014**
- **AQS-24 volume upgrades in progress**
- **Completed Joint Maritime Mining AoA (JHU APL)**
- **USV integration w/ AQS-24 sonars for day/night minehunting (four vessels)**
  - First vessel delivers in Dec 2013
- **Quickstrike mine wing kits – demo by Q2FY14**
- **Large Diameter UUV mine payload – demo by 2QFY14**

***Improvement To MCM Force Remains a CNO Priority: Steady Improvements Seen***

# USN MCM Roadmap

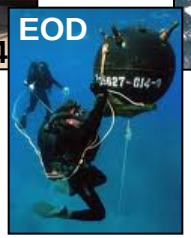
## MCM Force Transition

***Effective MCM at required Capacity***





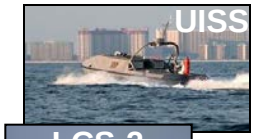





**Current Systems**

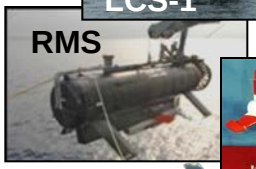
- Dated technology
- Slow speed of advance
- Large footprint
- Manpower / Training Intensive

- Distributed and Netted
- Unmanned Operations
- Cooperative Behavior
- Computer Aided Detect/Classify
- Common Operational Picture











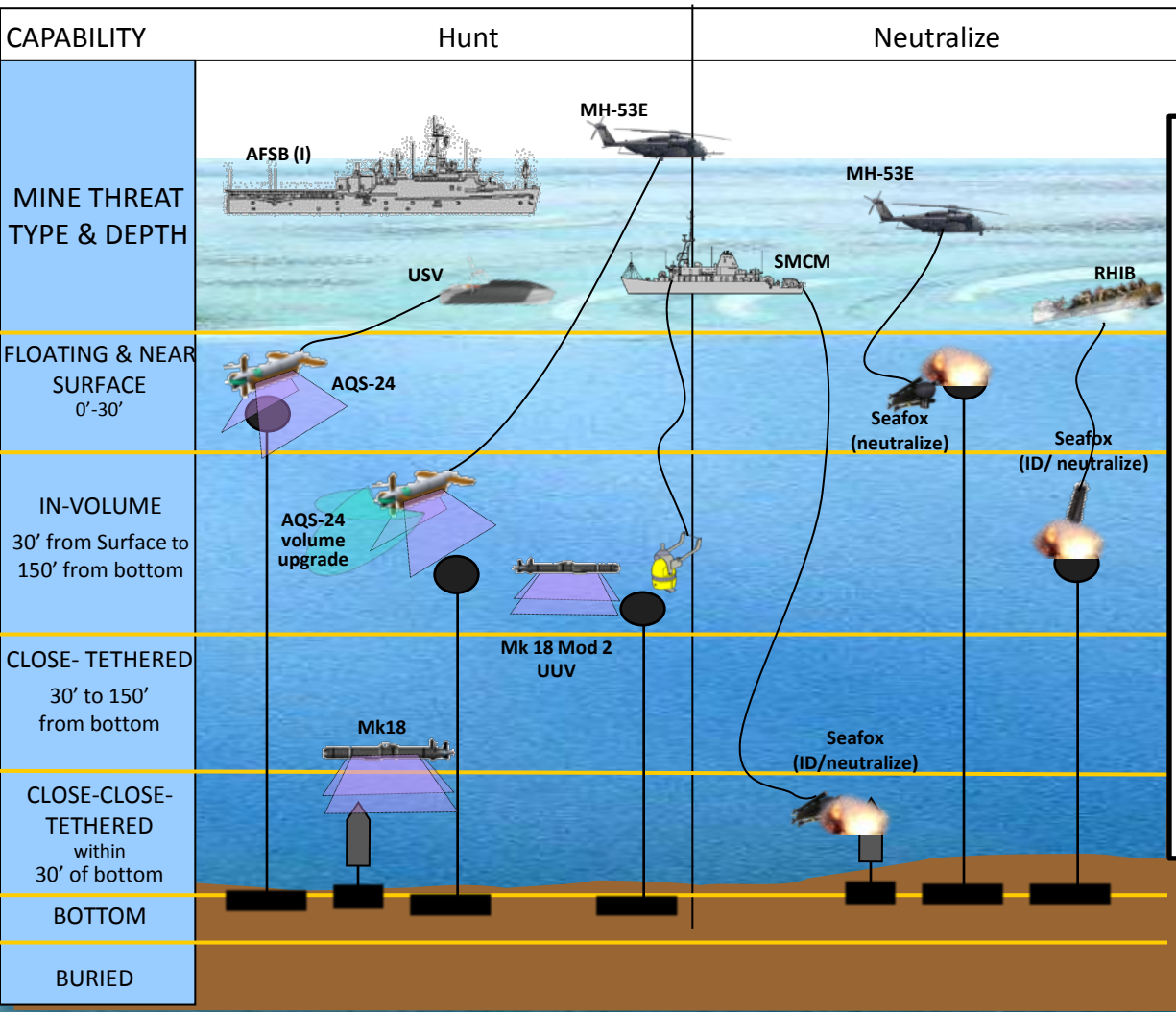
**Modeled Performance**

- Fast and Agile
- Precise
- Modular
- Optimized use of Manpower

**MCM VISION:**

***Field a Common Set of Unmanned, Modular MCM Systems Employable from a Variety of Host Platforms or Shore Sites that can Quickly Counter the Spectrum of Mines to Enable Assured Access with Minimum Risk from Mines***

# MCM Bridging Technologies




*Urgent Operational Need (UON) Systems*

- *SeaFox portable neutralizer*
  - *MH-53E (neutralize)*
  - *SMCM (identify & neutralize)*
  - *RHIB (identify & EOD neutralize)*
- *AQS-24 volume hunt upgrade*
- *Day/Night minehunting (USV)*

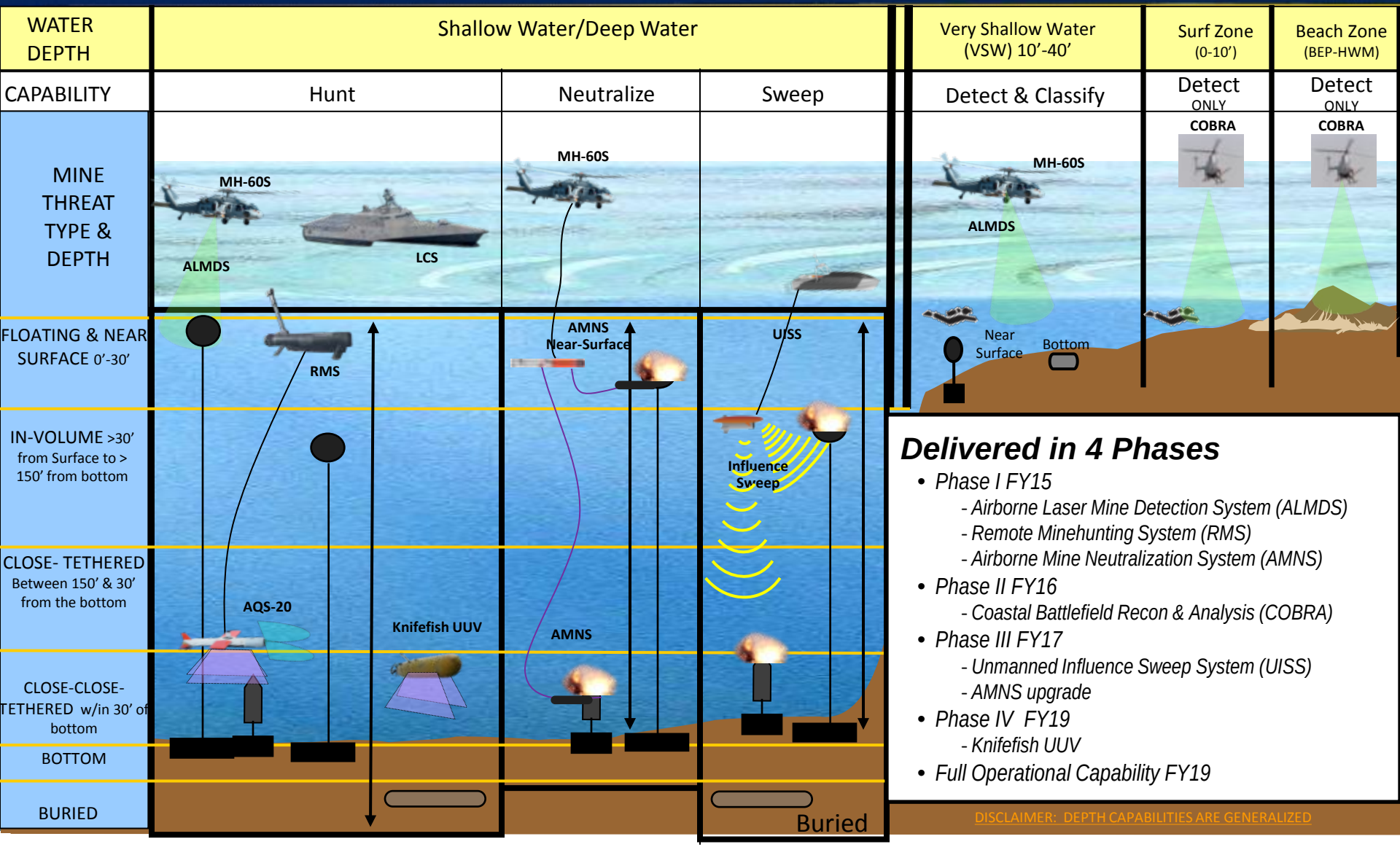
*OSD Fastlane System*

- *Mk18 Unmanned Underwater Vehicle (UUV) bottom hunt*

*Legacy System Upgrade*

- *High Frequency Wide-Band (HFWB) SQQ-32 sonar*

# LCS MCM MP Programmed End State




## Delivered in 4 Phases

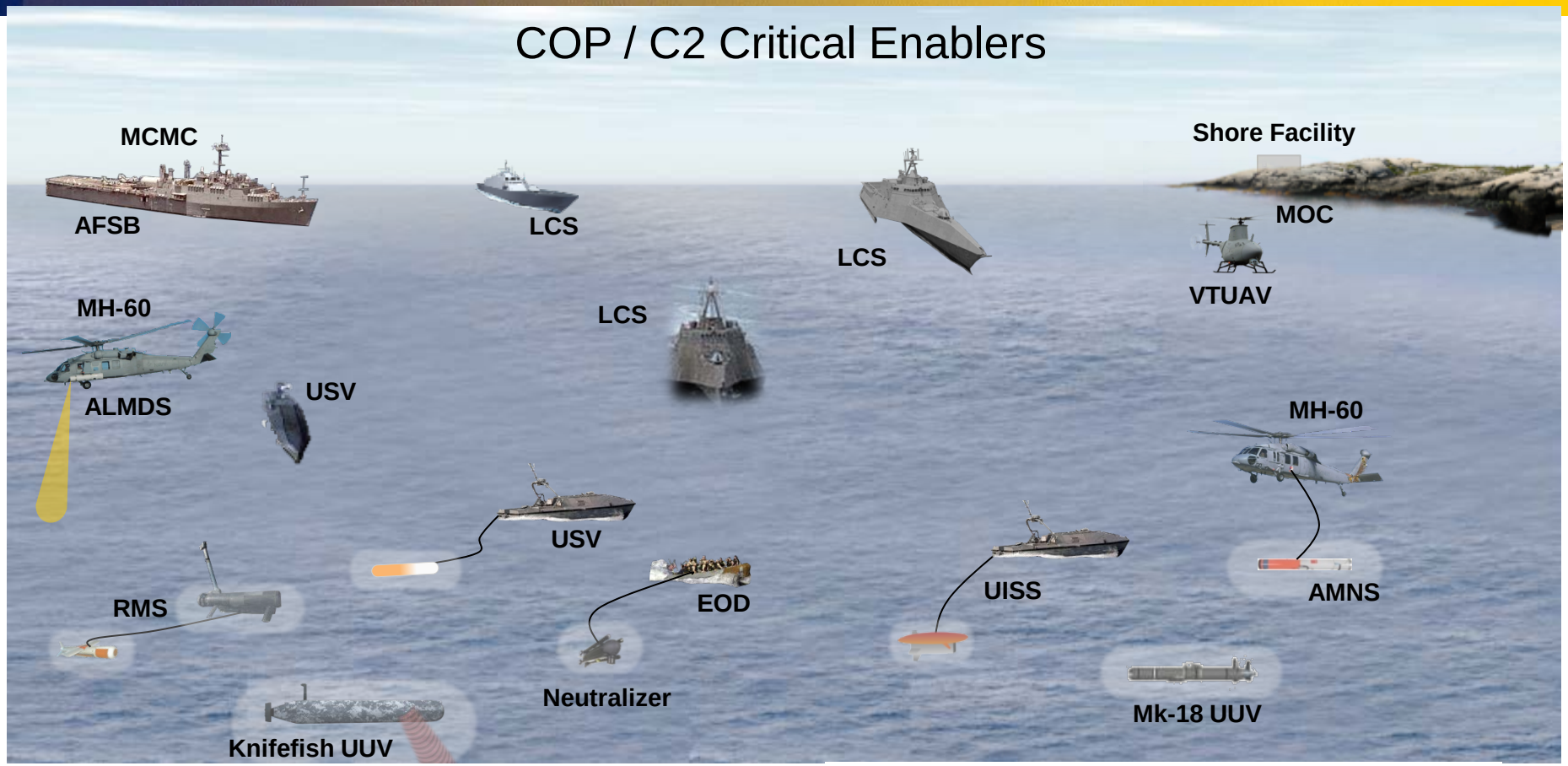
- *Phase I FY15*
  - *Airborne Laser Mine Detection System (ALMDS)*
  - *Remote Minehunting System (RMS)*
  - *Airborne Mine Neutralization System (AMNS)*
- *Phase II FY16*
  - *Coastal Battlefield Recon & Analysis (COBRA)*
- *Phase III FY17*
  - *Unmanned Influence Sweep System (UISS)*
  - *AMNS upgrade*
- *Phase IV FY19*
  - *Knifefish UUV*
- *Full Operational Capability FY19*

DISCLAIMER: DEPTH CAPABILITIES ARE GENERALIZED

# *MIW Near Term Challenges*

- **Constrained Fiscal Environment**
- **Affordable, Innovative, Modular and Sustainable Systems**
  - Can not pass inefficiencies to Sailors
- **Mine Warfare C4I (US/Coalition) and Command & Control Facilitation**
- **Compress time to complete Kill Chain for all MCM Systems (Find, Fix, Finish)**
- **Post Mission Analysis (PMA) Delay**
  - **1 hr of operation ~ 1 hr of PMA; we need to do better**
- **Obsolescence**
  - Require modular, open architecture systems that are supportable / easily replaceable
- **Revitalize Offensive Mining Capability**
  - UUVs and Air launched

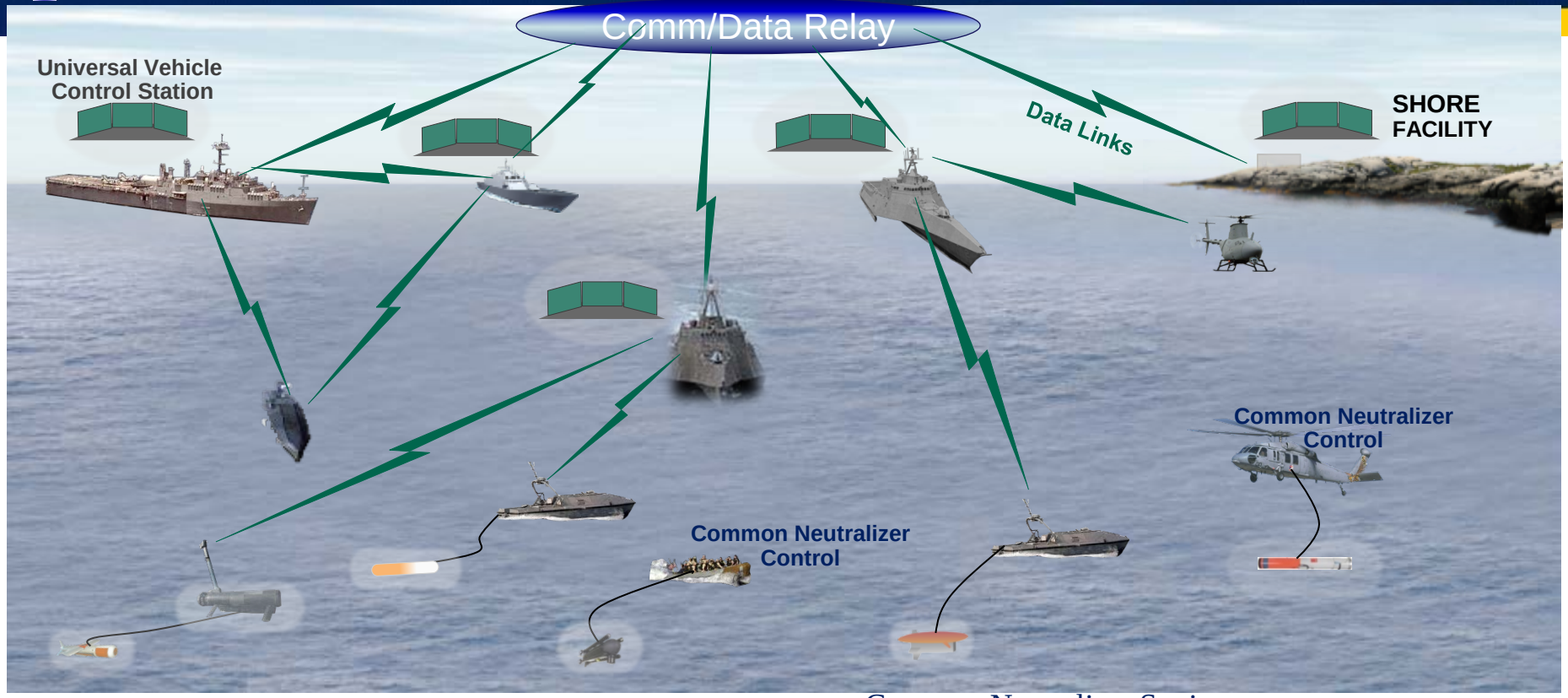
# Future MCM Battlespace




AFSB – Afloat Forward Staging Base
ALMDS – Airborne Laser Mine Detection System
AMNS – Airborne Mine Neutralization System
EOD – Explosive Ordnance Disposal
LCS – Littoral Combat Ship
MCMC – Mine Countermeasures Mission Commander
MOC – Maritime Operations Center
RMS – Remote Minehunting System
UISS – Unmanned Influence Sweep System
USV – Unmanned Surface Vessel
UUV – Unmanned Underwater Vessel
VTUAV – Vertical Takeoff Unmanned Aerial Vehicle

***Multiple Systems and Host Platforms Operating in Concert***

# Technology Enablers – Unmanned Vehicle Control




Universal Control Equipment for USV / RMMV

- Common console for all locations
- Hand-off capability
- Expeditionary
- Eliminate system-unique support hardware
- Develop/Incorporate detection aids: Computer-Aided Detection/Classification & automatic target recognition

Common Neutralizer Station

- Portable
- Ruggedized
- Common display and controls (air/surface)

Informational Assurance
Anti-Tamper
Sterilization

**Commonality of Systems Regardless of Host Platform**

# *Technology Enablers – Servicing*

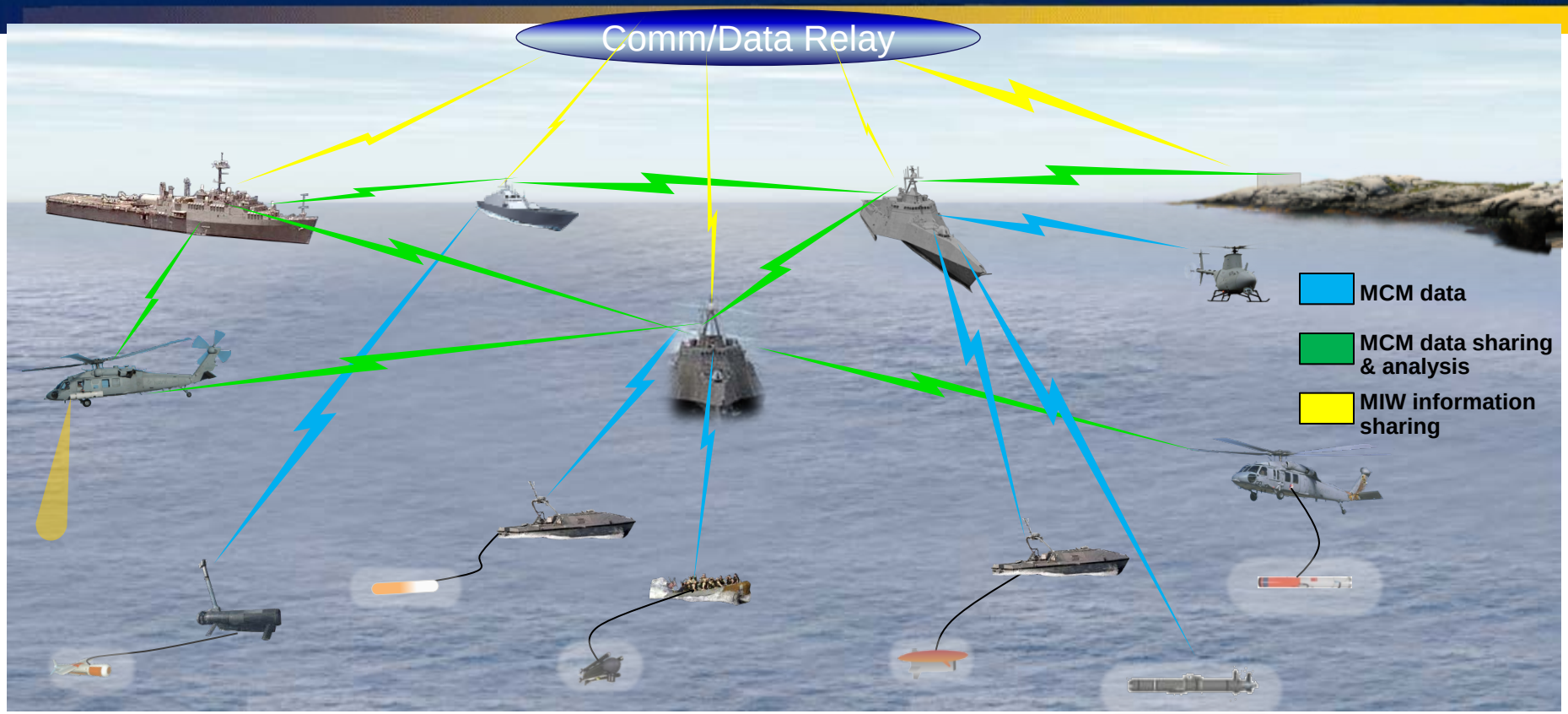
Alongside Servicing of Unmanned & Manned vessels

- Refueling
- Data extraction/transfer
- Expeditionary

- Reduce timelines
  - Recovery, turnaround, re-launch not required
  - Increase in-water time for multiple missions

***More On-Station Time, Less Turnaround Time = Increased ACRS***

# Technology Enablers – C4I




## Command, Control, Communications, Computers & Intelligence (C4I)

- Compatible data-links
- Over-the-horizon
- High data-rate transfer/connectivity
- Common data protocol
- Coalition—MEDAL integration
- Long endurance airborne (UAV) relay
- In-stride data transfer
- Tactical Decision Aides
- Data Links
  - Common Operating Picture
  - IFF
  - Information exchange

***Enhanced C4I to include Coalition Partners***

# *Opportunity for Industry*

- **Common Operating Picture (COP) for US/Coalition Forces**
  - Information exchange
- **Solutions to reduce Post Mission Analysis (PMA)**
  - Computer Aided Detection (CAD) / Classification (CAC)
  - Automatic Target Recognition (ATR)
- **Innovative Offensive Mining Solutions**
- **Near Surface Neutralization Capability**
- **Reduce Life-Cycle maintenance and sustainment costs**
- **UUV/USV power generation / endurance / communication**
- **Air-dropped UUVs for rapid reaction**
  - Need robust design while adhering to weight & aircraft/helo integration
- **Info sharing and cueing between Unmanned Systems**
- **Launch, Handling and Recovery system improvements**
- **Multiple, networked UUVs/USVs operating autonomously in suspected mine danger area**
  - Full Detect-to-Engage capability in a single pass

# *Takeaways*

- **Mine Warfare remains a top priority and Industry can help**
- **Fiscal environment is less stable, requiring stronger Government and Industry partnership**
- **Execute the Plan. Maintain Cost, Schedule, & Performance goals for programs is critical in this uncertain fiscal environment**
- **Inefficiencies and Risk can't be passed on to the Sailors**
- **Mission Package performance only gets better as operational concepts and new technologies evolve and are leveraged with Technology enablers**
- **Continue evolving LCS from single-ship to multi-ship, networked concept of employment**