OPNAV N95
Expeditionary Warfare

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**CDR Kevin Schrodt, USN
OPNAV N957 Expeditionary MCM
Requirements Officer**

DON MIW Strategy- MCM Lines of Effort

MCM Lines of Effort **End State**

LOE 1: Transition from legacy MCM systems

LOE 2: Develop and deliver improved, modular MCM Capability

LOE 3: Design and Develop MCM Next

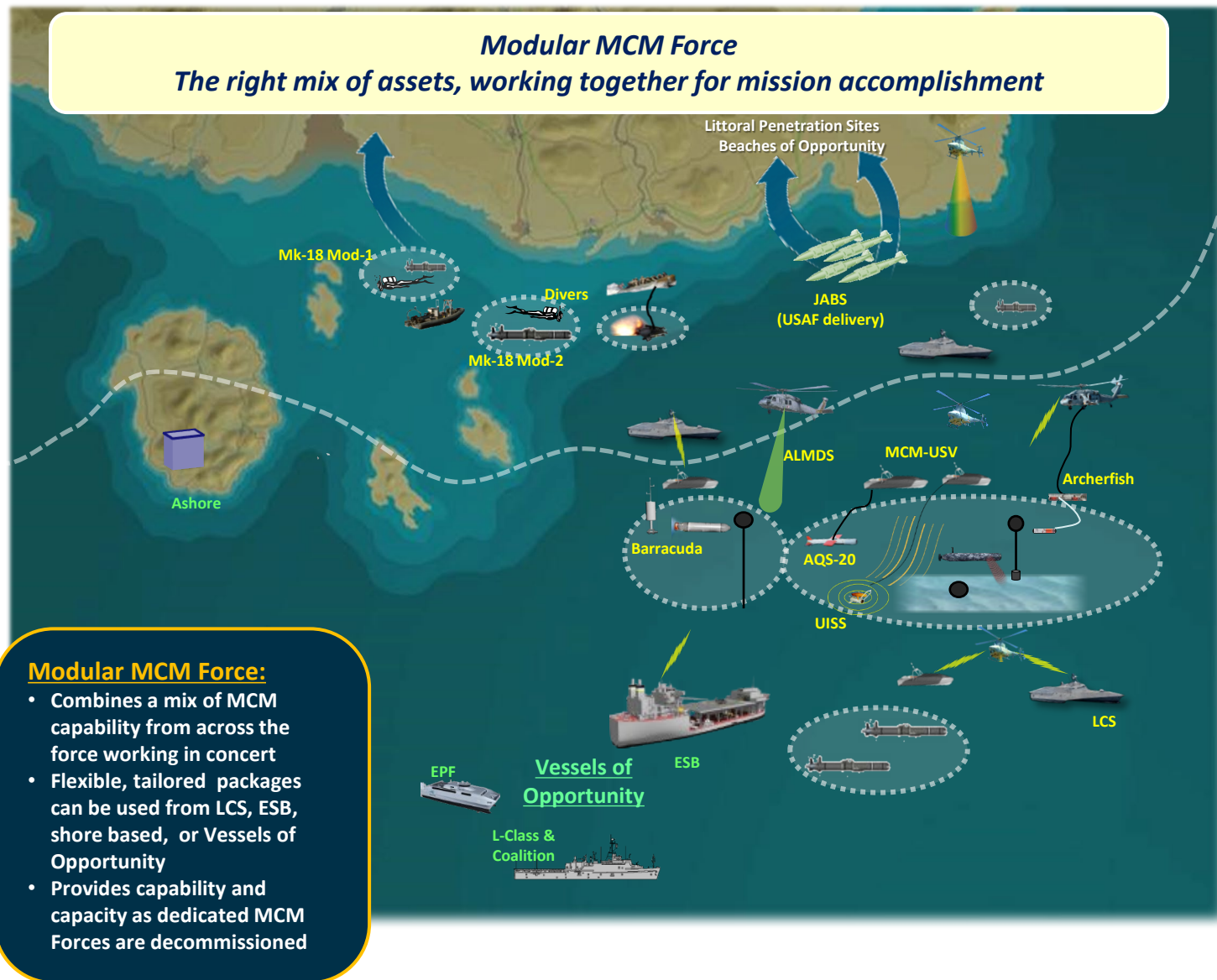LOE 4: Advance Interoperability and Interchangability

Enable freedom of maneuver throughout the maritime domain

Transition from Legacy to "Dynamic" Modular MCM Force

Modular MCM Force concept: Provides flexibility, Supports operational employment

- Multi-ship operations

- Employ both MCM MP <u>and</u> ExMCM as complementary capabilities

- Tailored configurations, bringing the modules needed for the phase of MCM operations

- Modules capable of operating independently of other modules

- **Modular MCM capability enables dynamic at-sea Fleet operations**

Modular MCM Force
The right mix of assets, working together for mission accomplishment

Littoral Penetration Sites
Beaches of Opportunity

Mk-18 Mod-1

Divers

Mk-18 Mod-2

JABS
(USAF delivery)

Ashore

Barracuda

ALMDS

MCM-USV

Archerfish

AQS-20

UISS

LCS

EPF

Vessels of Opportunity

ESB

L-Class & Coalition

Modular MCM Force:
- **Combines a mix of MCM capability from across the force working in concert**
- **Flexible, tailored packages can be used from LCS, ESB, shore based, or Vessels of Opportunity**
- **Provides capability and capacity as dedicated MCM Forces are decommissioned**

Modular MCM Mission Package

MCM Mission Package
- **Common Systems / MP Communications**
- **Support Equipment**
- **Planning/Analysis**
- **DOTMLPF**

LCS (N96, Host Platform)
- **Manpower/Berthing**
- **Launch & Recovery**
- **External Comms**
- **Installed Network**
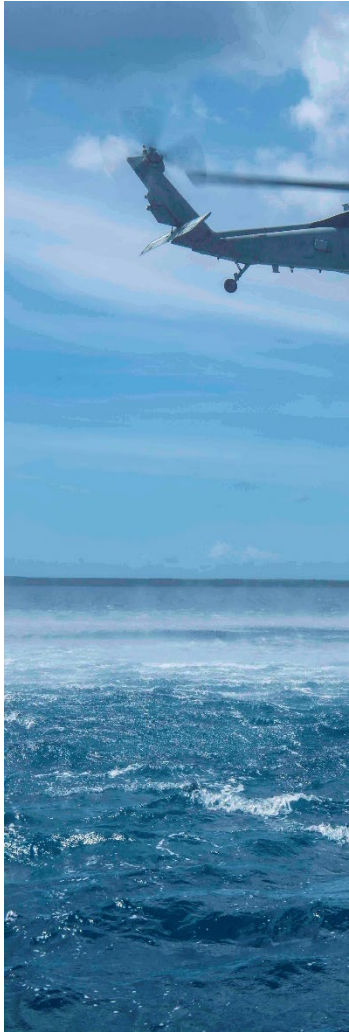
Modular MCM Systems

Deployment Platforms
MCM USV, MH-60S

Shown: Magnetic and acoustic influence sweep systems on MCM USV (UISS) during launch/recovery operations behind an Independence-Class LCS

Modular MCM MP construct provides mission-relevant configurations, and enables future technology insertion

Expeditionary MCM

Modular Systems: In the Fleet and in Development

Blue => In Development

- Individual ACAT programs
- DOT&E testing oversight

MCM Mission Systems

Mine hunting (from MH-60S and SLW-2 MCM USV)
- AN/AES-1 Airborne Laser Mine Detection System (ALMDS)
- AN/AQS-20 Towed Sonar

Neutralization (from MH-60S and SLW-2 MCM USV)
- AN/ASQ-235 Airborne Mine Neutralization System – Archerfish (AMNS-AF)
- *AN/WSQ-46 Barracuda Mine Neutralization System*

Influence Sweep (from SLW-2 MCM USV)
- AN/SLQ-63 Unmanned Influence Sweeping System (UISS)
  - AN/SLW–2 MCM USV
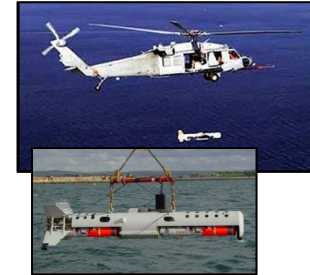
Expeditionary MCM (ExMCM) Company

Minehunting
- MK18 UUV (Mods 1&2)
- *MK18 Mod 3 UUV (Lionfish); Lionfish Plus*
- *Viperfish UUV*

Neutralization
- MESR- VideoRay Defender surface-tethered ROV
  - *Advanced autonomy, deeper depths, low-observable neutralization*
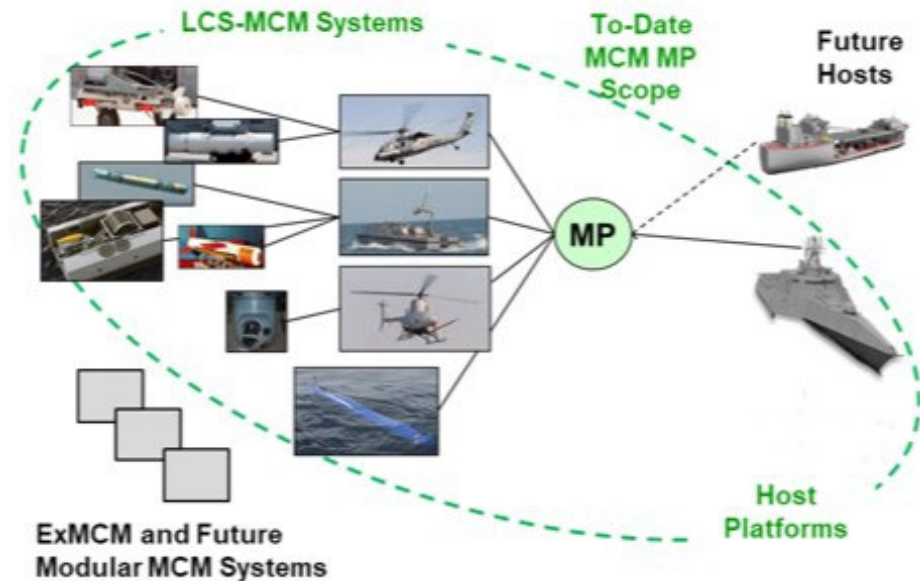- EOD Divers and gear – MK16 UBA
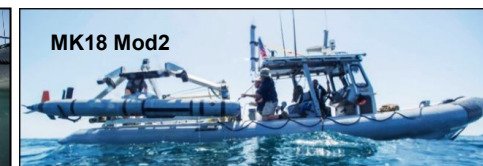
Influence Sweep
- None

MH-60S + ALMDS

MH-60S + AMNS Archerfish

LCS-MCM Systems
To-Date MCM MP Scope
Future Hosts
MP
ExMCM and Future Modular MCM Systems
Host Platforms
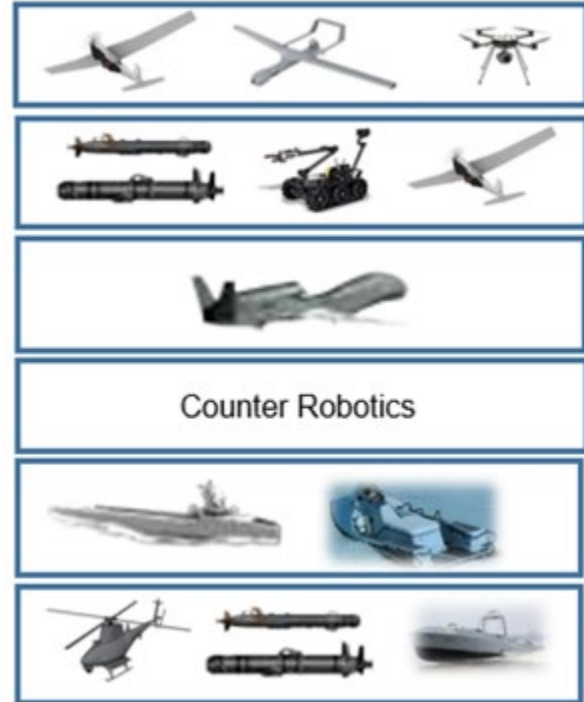

MK16 UBA

MK18 Mod1

MK18 Mod2

Robotics Warfare (RW) Rating

- RW Primary Duties
  - Mission & Platform Autonomy
  - Computer Sensors/Vision
  - Machine Learning Feedback
  - Responsible AI Tasks

- N95 Billets reclassified to RW
  - NSW: 116 - 170 billets
  - EOD: 125 – 150 billets
  - LCS / MIW: TBD

- Other Resource Sponsor RW Billets
  - Unmanned Patrol Squadron (VUP)
  - Counter RAS
  - Unmanned Surface Vessel Division (USVDIV)

N95 owns 66% of billets re-classified to RW

Navy may lead Joint RW "A School"

Examples of Associated RxS Platforms

Counter Robotics

Opportunities for S & T Partners

- **Improve Kill Chain for all MCM systems**
  - Extend the range of MIW
  - Better able to operate in challenging environments (e.g. beach zones, ports, and high clutter bottoms)
  - Any investment measured in terms of reduction in D-T-E timeline
  - Automated Target Recognition on the "wet edge"
  - Improved automation
  - Collaboration (UUV swarming; UUV/ROV cueing)

- **Affordability throughout Lifecycle**
  - Efficient maintenance procedures
  - Lighter/smaller systems
  - Open architecture and multi-platform systems (flexibility – interoperability)

- **Reliability and requisite performance during developmental testing**
  - Poor performing systems delay fielding and increase expense
  - Poor performing systems often get vertically killed
  - Any system with superior performance from industry will be the alternative

Allies & Partners

Delivering Combined Seapower (DCS) Charter Signing

REPMUS 2023 UUV Ops

Dynamic Messenger 23: NATO integrating Maritime Unmanned Systems into operations

REPMUS 23 UUV Ops during Dynamic Messenger

Questions?