

UNCLASSIFIED



# ***NDIA Expeditionary Warfare Operations Conference*** ***13 October 2016***



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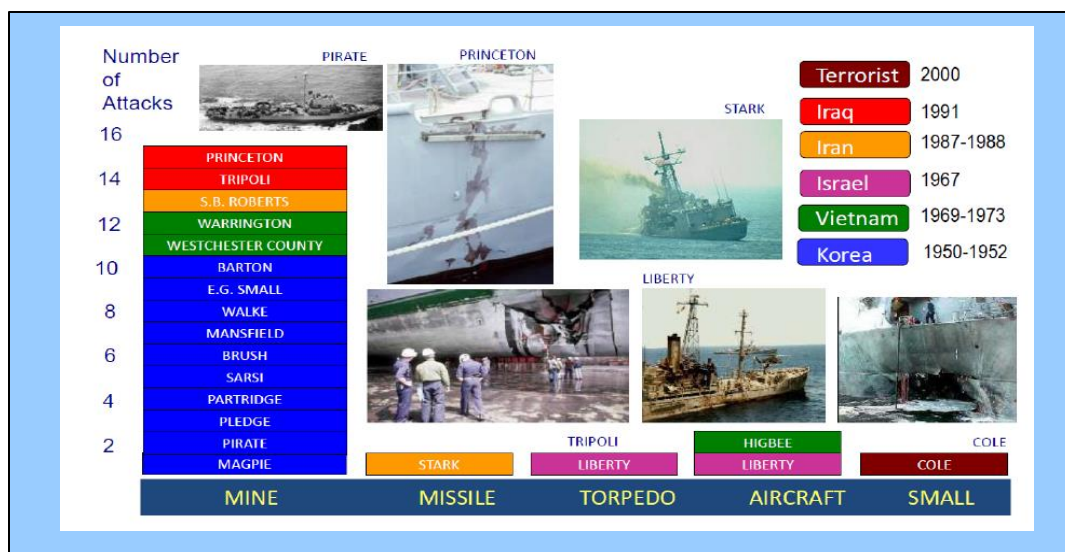
Overall Brief: UNCLASSIFIED



# N952 – Why We Are Here

- **Manage Mine Warfare Requirements and Resources**

- Enable United States Naval forces to conduct Mine Warfare (MIW) in support of military operations and warfighting scenarios worldwide
  - Includes Mine Countermeasures (MCM) and Maritime Mining capability
- Provide MIW systems to support maritime maneuver and power projection



- More than a quarter-million sea mines in the inventories of 50 navies around the world.
- More than 300 kinds of sea mines are produced by 30 countries.

Source: 2009 USN report, “21st Century U.S. Navy Mine Warfare; Ensuring Global Access and Commerce”



# MIW Programmatic Dynamics







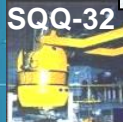
# Mine Countermeasures Roadmap

## Current MCM Force

## Future Force



**MCM-1 Class**



**MNV**



**MH-53E**



**Mk-104**



**AQS-24**

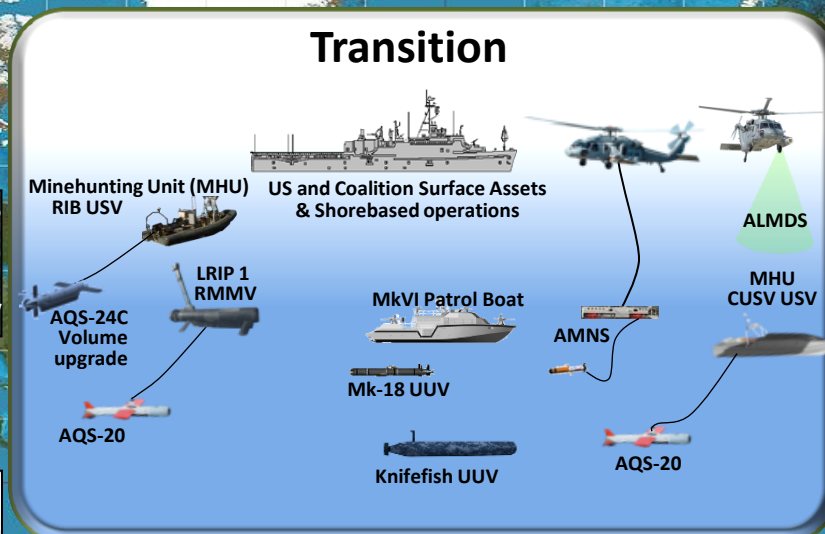


**EOD**



**Mk-18 UUV**

## Transition



### Bridge

- ExMCM Capabilities
- Targeted Sensor Upgrades
- Expanded Adaptive Force Experimentation
- Operational Assessment of MCM MP components
- Initial LCS deployments with MCM systems

### MCM VISION:

1. Reduce MCM timelines for Combatant Commanders
2. Reduce risk from sea mines to allow Joint Force mission execution



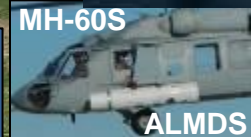
**LCS-1**



**LCS-2**



**CUSV**



**MH-60S**



**AMNS**



**AQS-20A**



**UISS**



**JABS**



**EOD**



**Knifefish UUV**



**Barracuda**



**VTUAV**

**COBRA**

### Future Performance

- Unmanned Systems
- Fast, Agile, Flexible
- Modular
- Optimized use of Manpower

### Current Systems

- Platform End of Service Life
- Man in the minefield
- Limited flexibility
- Slow response time (MCM-1)

ALMDS – Airborne Laser Mine Detection System  
 AMNS – Airborne Mine Neutralization System  
 COBRA – Coastal Battlefield Reconnaissance & Analysis  
 CUSV – Common USV  
 EOD – Explosive Ordnance Disposal  
 JABS – JDAM Assault Breaching System  
 JDAM – Joint Direct Attack Munition

LCS – Littoral Combat Ship  
 MP – Mission Package (for LCS)  
 MHU – Mine Hunting USV  
 MNV – Mine Neutralization Vehicle  
 RIB – Rigid hull Inflatable Boat

RMMV – Remote Multi-Mission Vehicle  
 UISS – Unmanned Influence Sweep System  
 USV – Unmanned Surface Vehicle  
 UUV – Unmanned Undersea Vehicle  
 VTUAV – Vertical Takeoff Unmanned Aerial Vehicle



# Maritime Mining

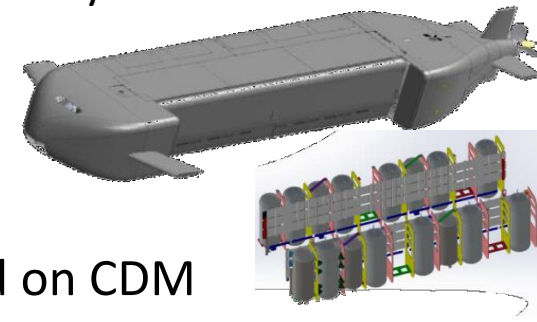
- **Legacy systems remain in service**

- Submarine Launched Mobile Mine (SLMM)
  - Being maintained with no planned upgrades
- Quickstike (QS) Aerial Delivered Mines
  - Receiving target detection device (TDD) upgrades
  - Several demonstrations of precision standoff delivery capability



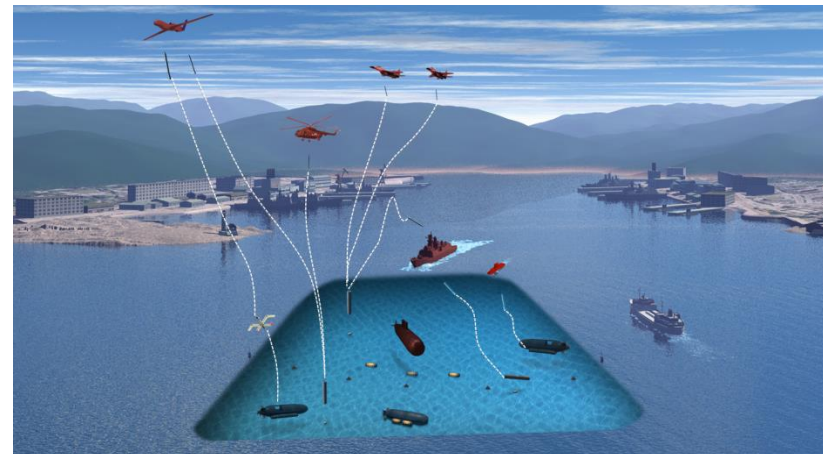
- **Clandestine Delivered Mine (CDM)**

- SLMM warhead section repackaged for unmanned delivery
- Military Utility Assessment scheduled for 4QFY17
- Remote Control is in development and will be integrated on CDM



- **Advanced mining**

- Fleet demand signal is strong
- Leveraging multiple efforts (ONR FNC, rapid prototyping, etc.) to develop future program of record
- Envision a distributed, integrated network of undersea sensors and effectors



**LEVERAGING EFFORTS TO DELIVER CAPABILITY**



# Opportunities for Industry

- Period of Transition and Innovation
- Compress time to complete Kill Chain for all MCM systems
  - Any investment measured in terms of reduction in Kill Chain timeline
  - Real-time analysis (automated target recognition, data dissemination)
  - Multi-Mission systems (Mine Hunting, Sweeping and Neutralization)
- Mine Warfare C4I (US/Coalition) and Command & Control Facilitation
  - Common standards and interfaces—common training
  - Modular and Interoperable
  - Mission planning and analysis outputs compatible across systems (data sharing)
- Affordability throughout the Life Cycle
  - Supportable & Sustainable Systems with efficient maintenance procedures
  - Lighter/smaller systems
  - Open Architecture and Multi-platform Systems (flexibility – Interoperability)



# *Questions*