



NECC UNMANNED SYSTEMS

Mine Warfare Association Industry Day

5 NOVEMBER 2014

UNCLASSIFIED



Agenda



- **UUV in support of Detect to Engage Sequence**
- **Industry Focus Areas**
- **Key attributes of future systems**
- **Operational Vignettes**



MCM Detect to Engage Sequence



**F3EAD
Process**



**MCM
D-t-E**



Means

- | | | | | |
|---|---|--|--|--|
| <ul style="list-style-type: none"> • Ex MCM Co. • MMS • MCMV • AMCM | <ul style="list-style-type: none"> • ExMCM Co. • MMS • MCMV • AMCMV | <ul style="list-style-type: none"> • Ex MCM Co. <ul style="list-style-type: none"> - PMNS - ROV - EOD Diver • MMS • AMNS • SMNS • MCMV • AMCMV | <ul style="list-style-type: none"> • Ex MCM Co. <ul style="list-style-type: none"> - EOD Diver • Navy Exploitation Lab | <ul style="list-style-type: none"> • Ex MCM Co. • UMCMC • Navy Exploitation Lab • EODTECHDIV |
|---|---|--|--|--|



UNCLASSIFIED



Industry Focus Areas



General:

- **Near term vs. Long term development**
 - What is achievable now
 - What is in the realm of the possible for the future
- **Technology fusion**
 - Multiple sensor capabilities combined into one package
- **Solutions that ENHANCE warfighter capability**
- **Balance between Search, Identification, and Neutralization capabilities**

Speed, Sea State, Sensors



Industry Focus Areas: SPEED



- **Vehicle**

- Transit speed
- Mission speed

- **Data exchange**

- In stride data transfer
- Reach back data transfer

- **Post mission analysis**

- Automatic target recognition
- Computer aided detection, classification, identification (CAD/CAC/CAI)



Decrease D-t-E timelines



Industry Focus Areas: SEA STATE



- Improve launch & recovery capability in adverse weather conditions
- Alternate deployment/recovery methods
 - Air launch and recovery
 - MH-53/60
 - Platform agnostic (coalition A/C)
 - Subsurface launch and recovery
 - Larger surface vessel launch and recover
 - AFSB/MLP
 - Platform agnostic (coalition surface vessel)



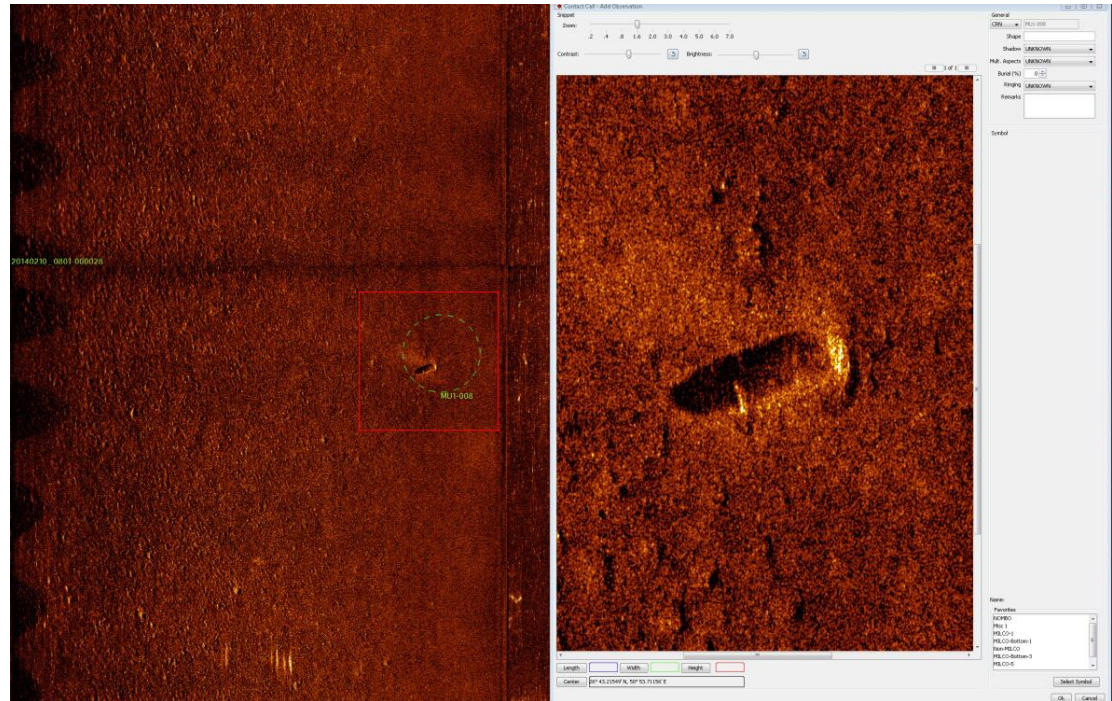
Similar sea state operational capacity
across MCM Triad



Industry Focus Areas: SENSORS



- Improved clarity
 - High definition quality
 - EO/IR
 - False alarm reduction
- Explosives detection
- Magnetic detection
- Plug and Play/Modular
- Open architecture
- Size to weight ratio
 - Portable (man vs. 2 man)
- Sensor fusion/Interface



Single pass Detection, Classification, & Identification



Key Attributes



- **Key Attributes that affect MCM D-t-E timeline**
 - Reliability
 - Maintainability
 - Operational availability (Ao)
- **Other desired capabilities**
 - Operated with and by current force structure
 - Modular/plug and play
 - Platform agnostic
 - Reduced influence signatures
 - Operate in A2AD





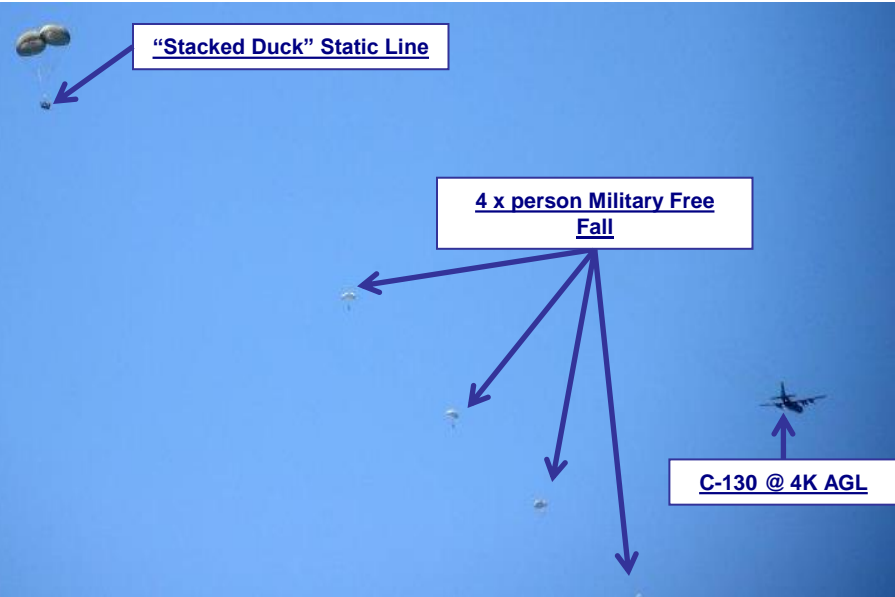
Expeditionary MCM Rapid Insert Proof of Concept



OVERVIEW: On 3 July 2014, EODTEU ONE personnel conducted a parachute insertion of an expeditionary MCM element.

- 4 x pax via MFF
- 2 x combat rubber raiding craft “Stacked Duck” via static line
 - 1 x small man portable UUV
 - 1 x man portable ROV
 - All support equipment

3 HOURS from insertion to
Identification





Operation Khunjar Hadd 19



- **Bilateral UMCM exercise (U.S. and OMAN)**
- **Sea Port of Debarkation clearance from shore**
- **MK 18 mod 1's and 2's in conjunction with EOD Divers**
- **Reduced Detect to Engage timeline by co-locating UUV operators with EOD Divers**





QUESTIONS?

