



Current and Future Mine Warfare

Combined Naval Event
MAY 2023

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Deputy Director

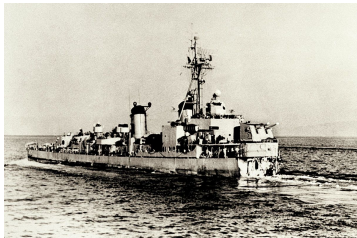
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This Brief is:
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The Mine Warfare Cycle Since WW 2

MCM



KOREAN WAR



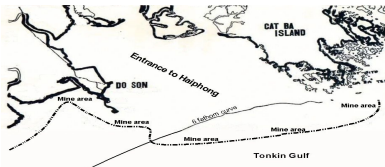
TANKER WARS



DESERT STORM



Mining



VIETNAM WAR

WHY NOT MINES ?

- Hard to control collateral damage
- Not precise
- Need to clear UXO after conflict
- Maritime dominance for 40 years

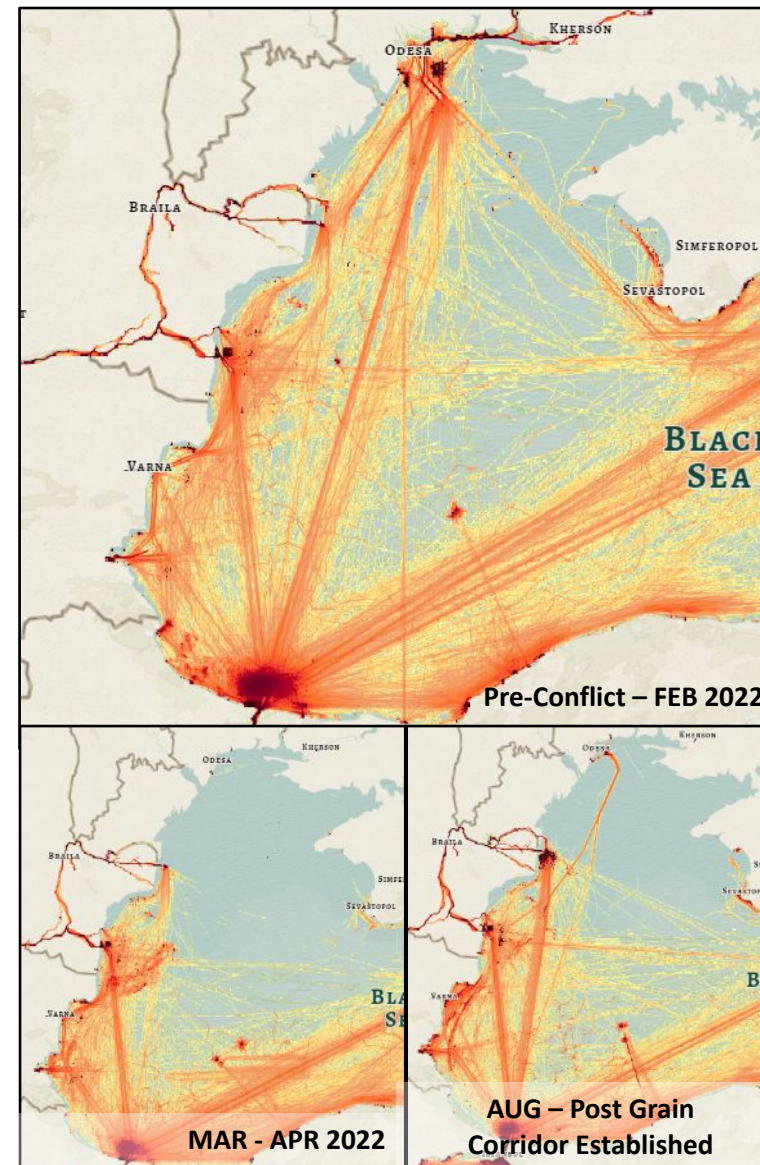
“When you can’t go where you want to, when you want to, you haven’t got command of the sea” – Admiral Forrest Sherman



Black Sea Shipping Impacted by Conflict



Mine Related Activity in the Western Black Sea

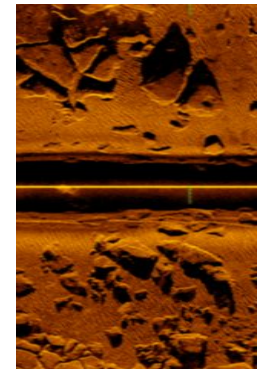


AIS Data Showing Impact to Shipping



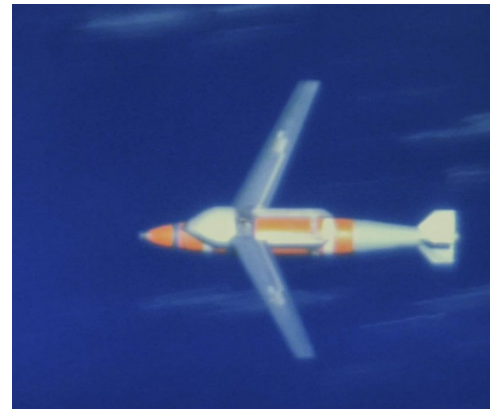
Transitioning to Unmanned and Autonomous Systems

- Sundown of Legacy Systems
- Introduction of LCS MCM Mission Package
- Growing Expeditionary MCM Capability
- Innovative Sea Basing Options





USN Adaptive Force Package

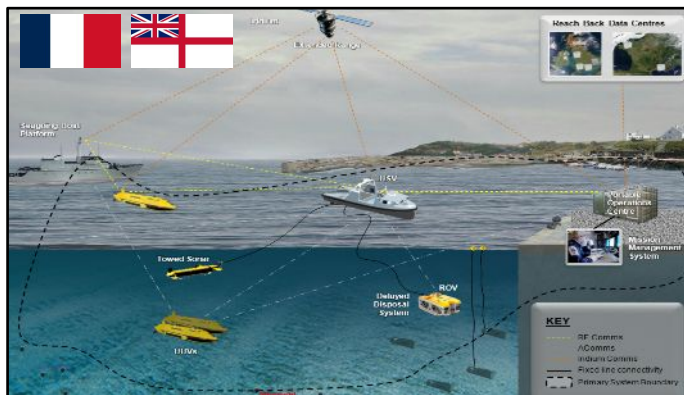


Quickstrike ER



Long Endurance UUV/USV

FRA/UK MMCM Program



XL UUV



BEL/NED Joint Replacement





How do we...

- **Make MCM faster ?**

- In stride data transfer
- Automatic Target Recognition (ATR)
- Single Sortie Detect to Engage (DTE)
- Shorten the Post Mission Analysis (PMA) timeline

- **Make MCM forces more agile ?**

- Hosted on multiple platforms
- Improved Modularity - Agile, Flexible
- Scalable Capability / Capacity

- **Improve UUV/USV/ROV ?**

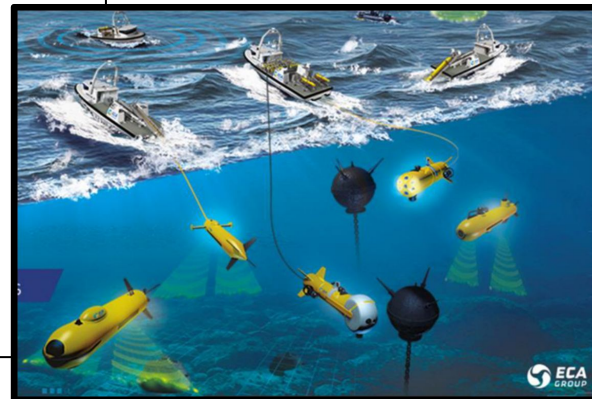
- Improved Sensors / Depths
- Reduced Signatures
- Networked
- Clandestine
- Endurance

- **Operate in Challenging Environments ?**

- Positioning, Navigation, Timing
- Comms Resilience
- Cold and hot weather
- Currents

- **Improve Interoperability?**

- Share information and knowledge
- True Common Operating Picture (COP)





*Change is the law of life. And those who look only to
the past or present are certain to miss the future.
John F. Kennedy*

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