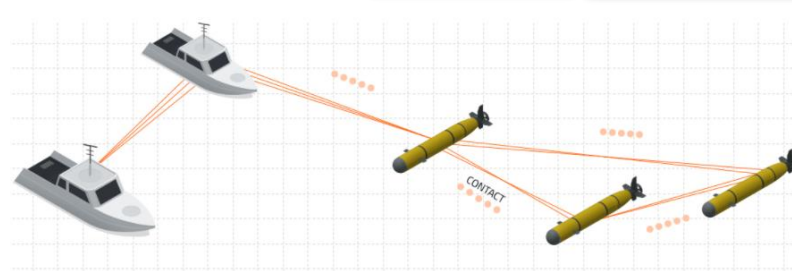


Diving and use of technology in Expeditionary MCM and Maritime EOD 21C Royal Navy

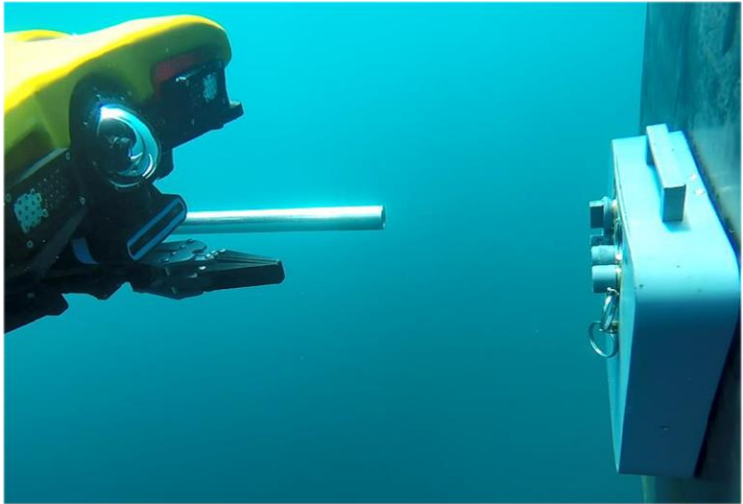
Diving & Threat Exploitation Group



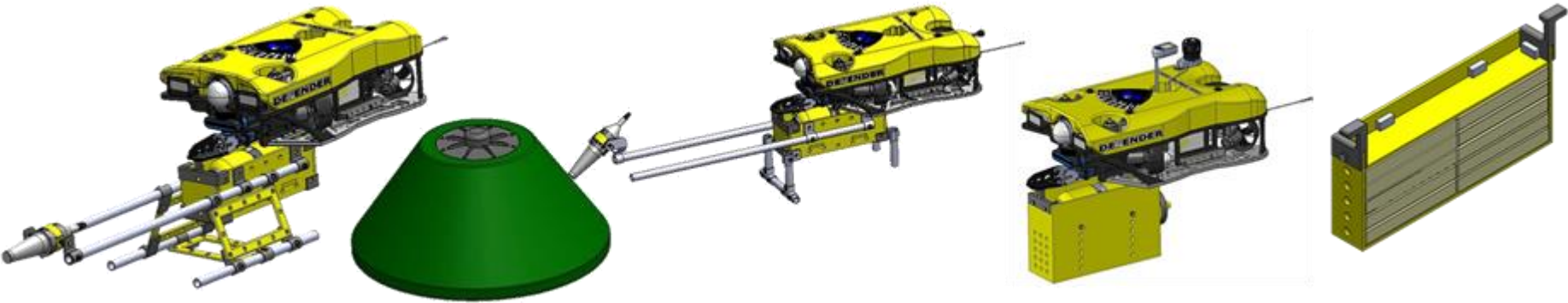
Lt Cdr Dave Starkey RN
CO Delta & Echo Sqns



Lethality: embracing and operationalising technology



seebyte
Multi-Domain Command & Control Autonomy
Mission Management Software



MHC STRATEGIC CONCEPT

- MHC will deliver a generational leap in Royal Navy Mine Countermeasures (MCM) capability. It will:
 - reduce risk to life
 - enable replacement of an ageing MCMV fleet
 - integrate current and future MCM technologies into a credible system of systems, scaled to meet a range of Defence requirements
- Agile and adaptable, to exploit rapid learning and keep pace with future technological development
- Deliver an autonomous mine hunting and mine sweeping system capable of being persistently deployed afloat or ashore, to meet national, NATO or Coalition requirements

Ministry of Defence **deas** Cutting-edge autonomous minehunting system technology enters production for UK Royal Navy

World-class systems include:

- Portable Operating Centre
- Autonomous Surface Vehicle
- Towed Sonar
- Mine Neutralisation Equipment

215 highly-skilled UK jobs sustained and created in Somerset, Plymouth, Aberdeen and Glasgow

Autonomous Surface Vehicle
12 metres in length and capable of carrying multiple task-specific payloads

UK invest £184M in joint programme with France

Remotely operated minehunting system will reduce risk to Royal Navy personnel from modern threats

will be able to remotely detect and neutralise mines from a safe distance

ROYAL NAVY

Defence, Equipment & Support

Royal Navy Autonomous Minesweeper System
World-class SWEEP systems will defeat threat of sea mines

£25 million contract with Atlas Elektronik UK to deliver three cutting-edge SWEEP systems

Supports 24 jobs in Dorset

Operated remotely from suitable ships or the portable command and control cabin

Sense and avoid capability

Unmanned Surface Vessel (USV)
- 11m long / 10 tonnes

Significantly reduces the risk to service personnel

Ability to defeat modern digital mines that cannot be countered by current mine hunting techniques

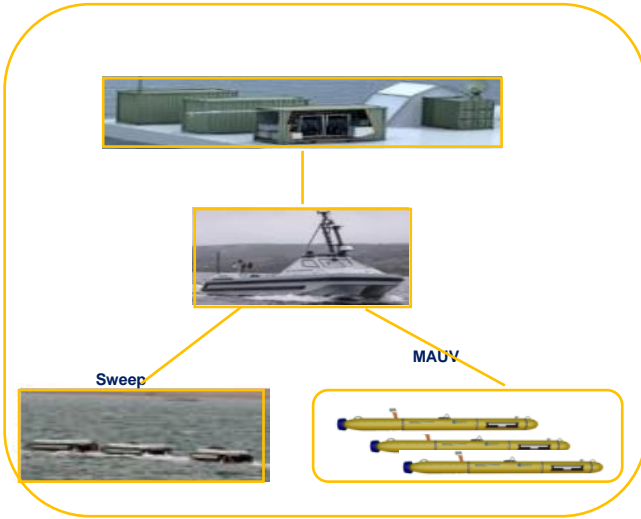
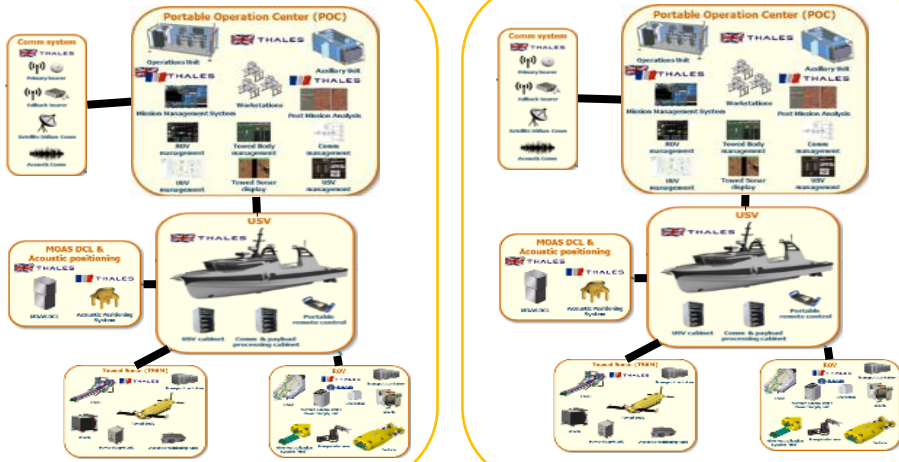
System transportable by:
Air
Land
Sea

Autonomous Surface Vessel tows a variety of configurations emitting magnetic, acoustic and electro signatures to neutralise sea mines

Defence, Equipment & Support

MHC Block 1 Mission System

Block 1 Mission System



- Delivers 2 x MMCM 200m MCM MAS: Faslane and Gulf
- 2 x C2 Modules to control ASV delivered HUNT (Change/Detect) and Autonomous ROV DESTROY

- Delivers Autonomous Sweep DESTROY/DEFEAT complex mines
- AUVs to conduct discreet/covert HUNT (separate AUV programme)





Integrated

- ExMCM, diving and EOD teams integrated into the system of systems that is MHC.
- Latest bespoke software allows UK diving and UUV elements full integration and interoperability with other UK elements but also some USN elements, expanding to further NATO partners.
- MMCM, MCMV launched UUVs, DHHS, DTXG UUVs on a common data architecture – common picture, goal-based planning and asset management to deliver streamlined tasking.

- Provides an interface between land and sea, littoral operations and niche areas.
- Links wide-area clearance with the final objective.
- Provides additional FIX/FINISH capability and increases Speed of Advance for clearance operations.
- Provides resilience in contested areas and also machine failures.



Threat Context – UK



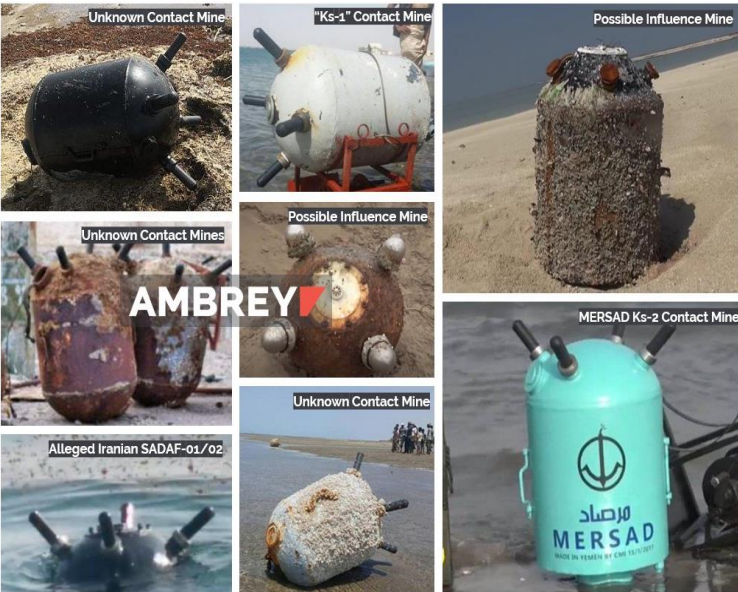
Man arrested after possible explosive device found near St Dennis

2 hours ago



Threat Context

#war Another naval mine YaM-type with a similar marking on the hull. In this case, it was probably used for an explosive barrier on the road in Mariupol.



DTXG – Op Support Sqn



**Operational Support Squadron
(OSS)
Portsmouth**

**OSS
Diving
Team**

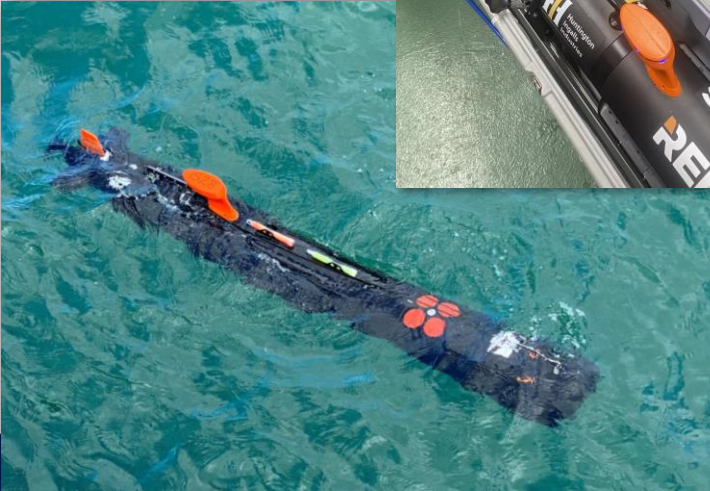
Portsmouth

**Trg &
Validation
Ops Sp**

**OSS
Autonomy
Team**

Portsmouth

**TacDev &
Operations**



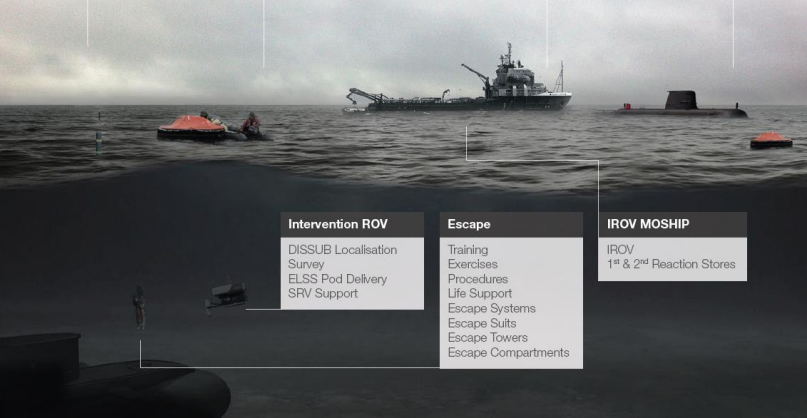
SPAG
Medical Support
Survival Stores

Alertment
Indicator Buoys
PLBs
SEEP/IRBS
SUBOPAUTH

Sea Survival
Single/Multi Man Ilferrafts
Alertment Training
Procedures
Exercises

Command & Co-ordination
On Scene Cdr
Cdr Rescue Forces
Rescue Element Cdr
ISMERLO

Surface Abandonment
Life rafts
Freeboard Extenders
Survival Suits
Boarding Procedures



Intervention ROV
DISSUB Localisation
Survey
ELSS Pod Delivery
SRV Support

Escape
Training
Exercises
Procedures
Life Support
Escape Systems
Escape Suits
Escape Towers
Escape Compartments

IROV MOSHIP
IROV
1st & 2nd Reaction Stores

DTXG – Alpha Squadron

Alpha Sqn

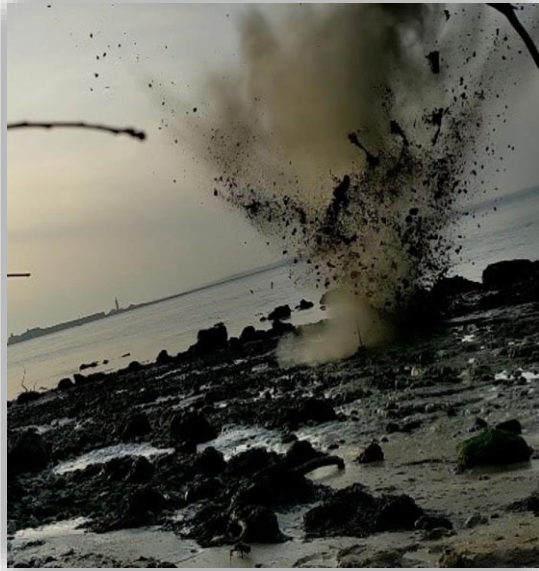
Support to SOF



DTXG – Bravo Squadron

Bravo Sqn

UK EOD MACA
Surface Fleet support



Plymouth City Centre

Man arrested after suspected grenade found at hotel

A 100m zone around the Premier Inn at Derry's Cross was cordoned off



By EDWARD OLDFIELD 23/6/2021

A man was in police custody in Plymouth in connection with the discovery of a suspected grenade at a hotel.



DTXG – Bravo Squadron

German SC500 Air Dropped Weapon

East of Cowes, Solent

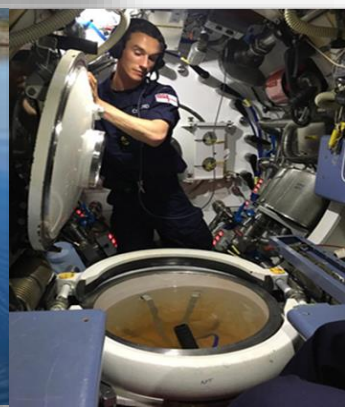
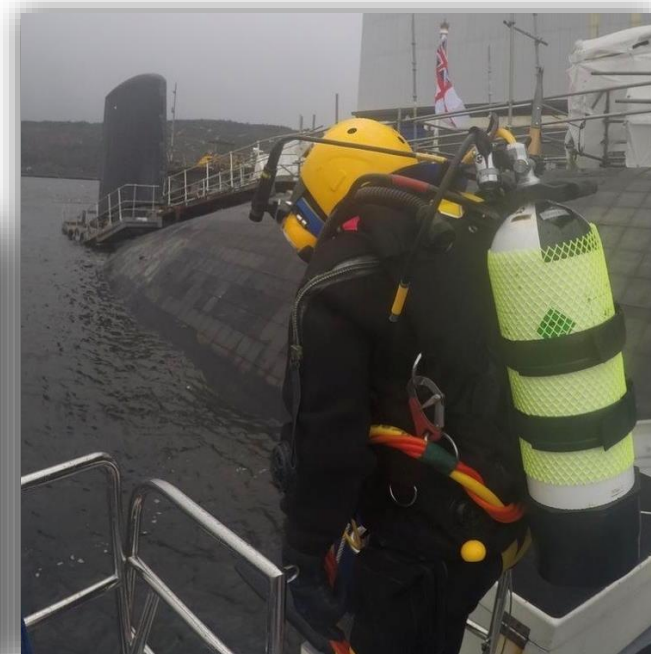
Joint Service EOD Task No 103616



DTXG – Charlie Squadron

Charlie Sqn

UK EOD MACA
SM Fleet support
NSRS



DTXG – Delta Squadron

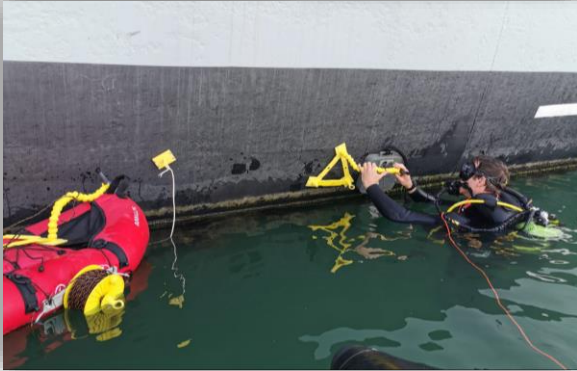
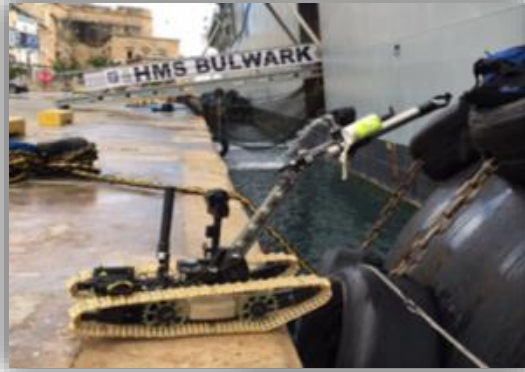
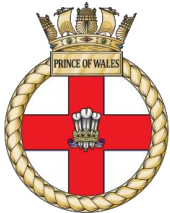
**Delta Squadron
(Delta Sqn)
Portsmouth**

**Delta
Diving
Unit 1
(DDU1)
Portsmouth**

**MTG
QEC**

**Delta
Diving
Unit 2
(DDU2)
Portsmouth**

**Deployed
Mar-EOD**



DTXG – Echo Squadron

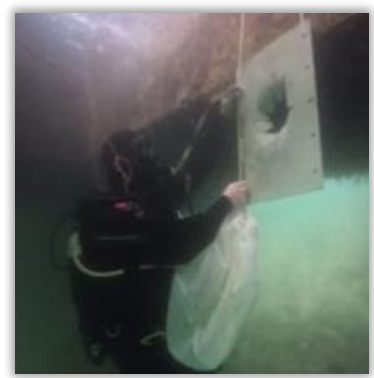
Echo Diving Squadron
(Echo Sqn)
Portsmouth

Echo Diving Unit 1
(EDU1)
Portsmouth

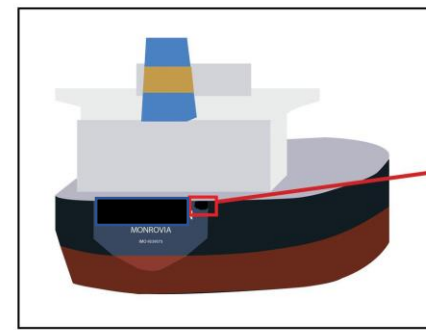
Exploitation
LitS
ExMCM

Echo Diving Unit 2
(EDU2)
Portsmouth

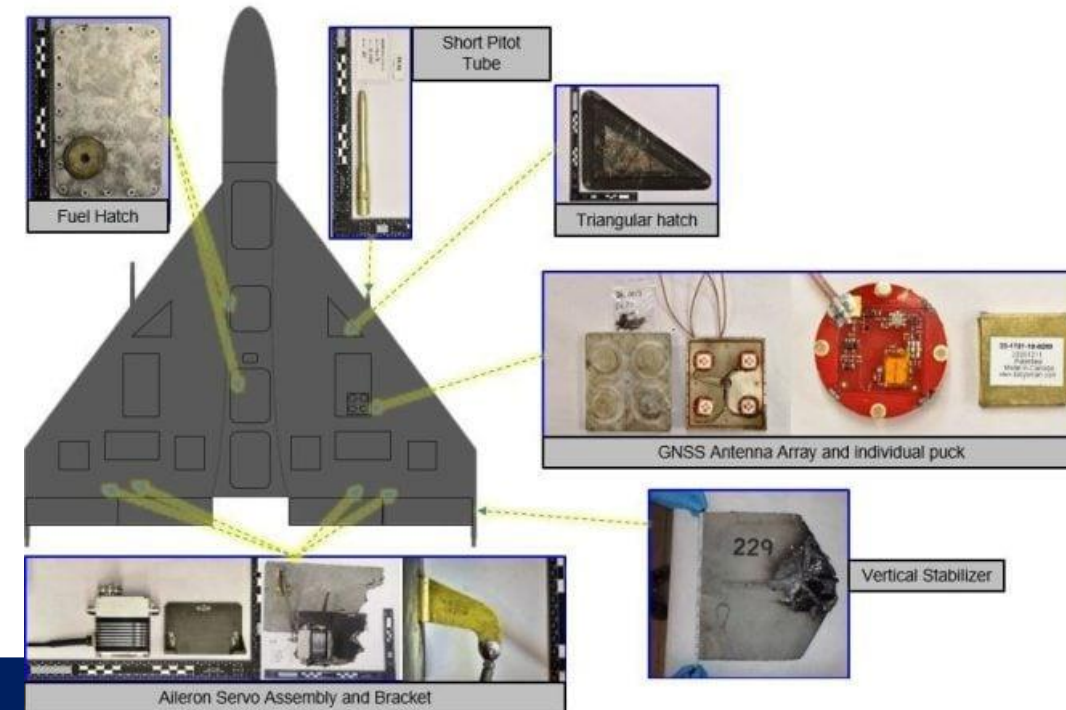
Exploitation
LitS
ExMCM



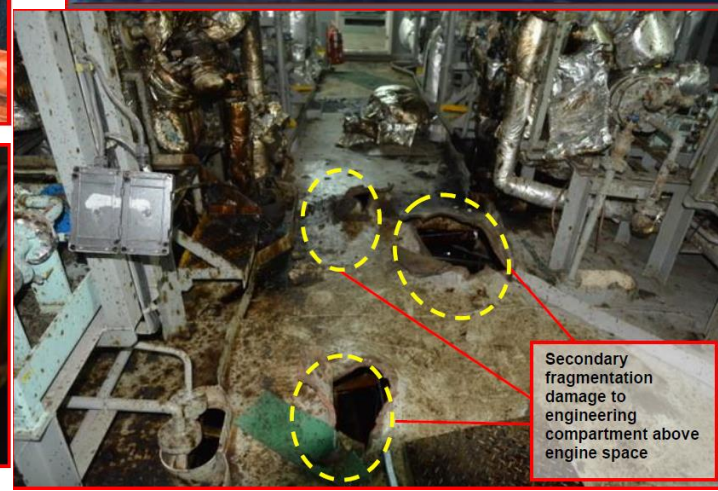
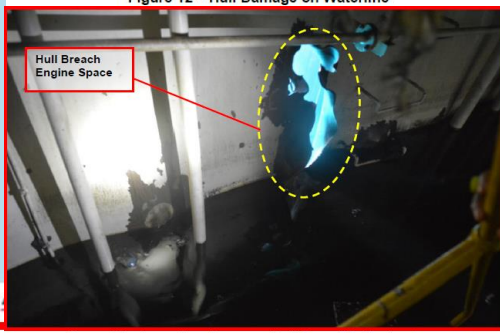
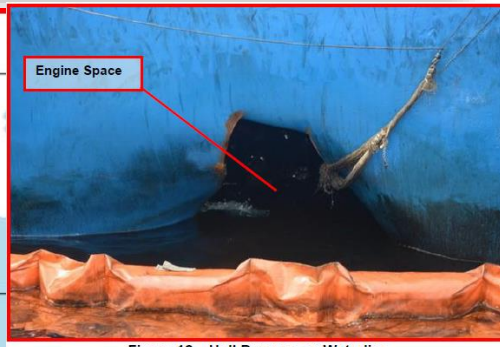
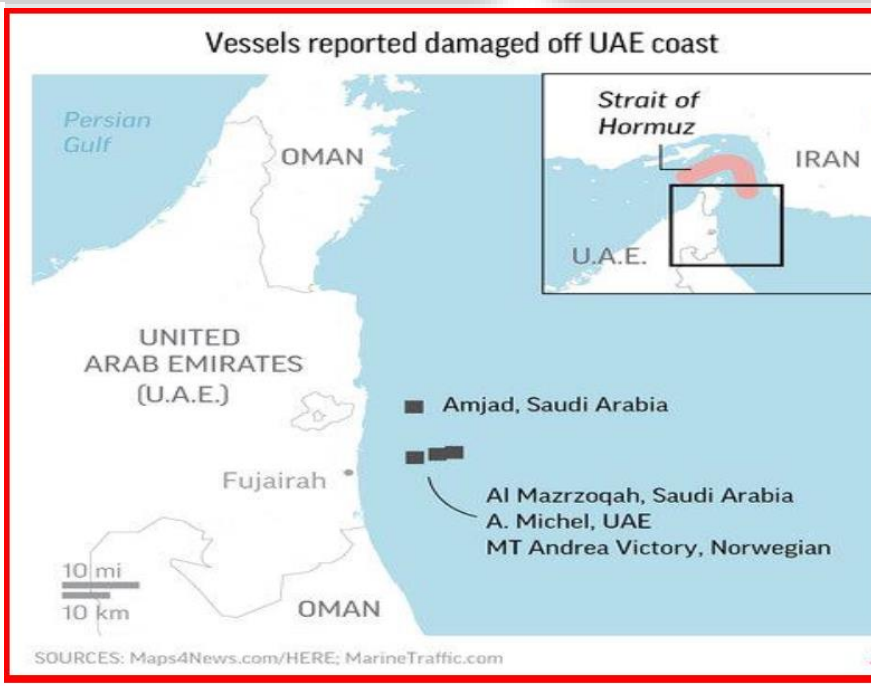
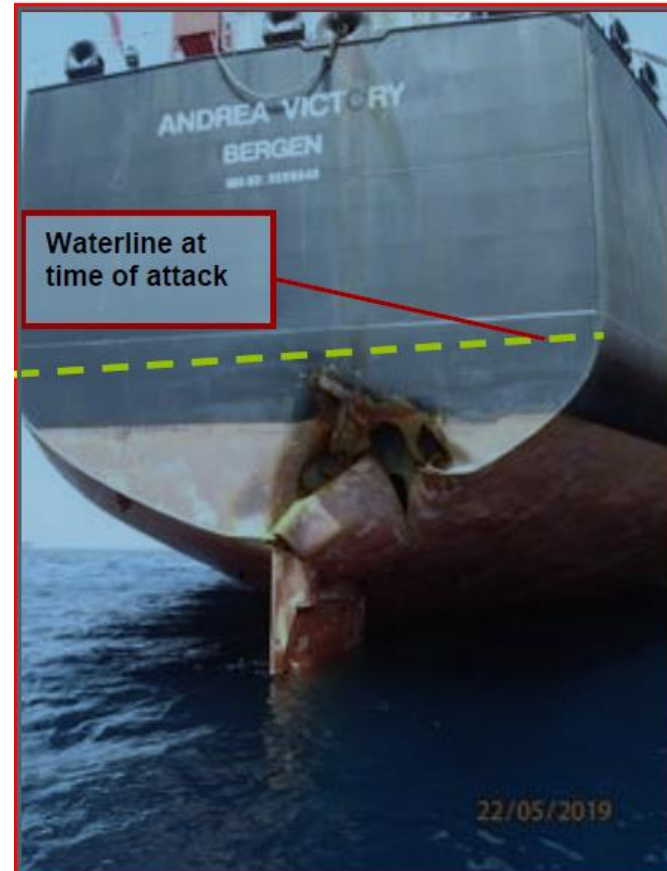
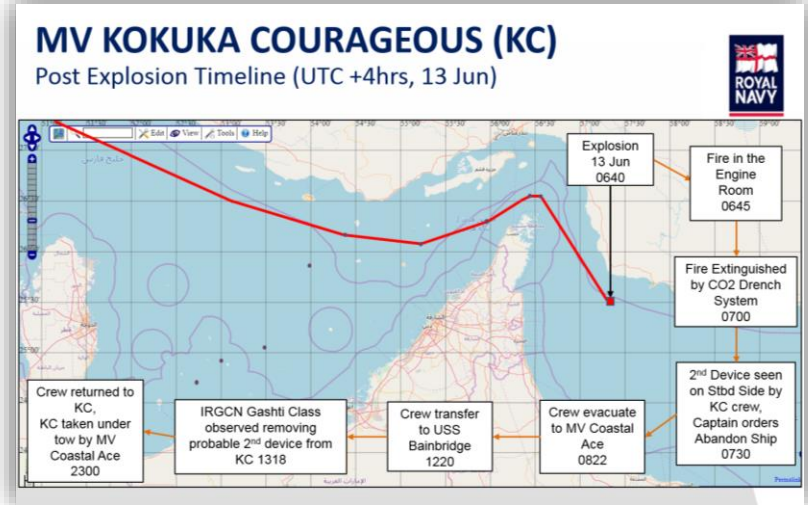
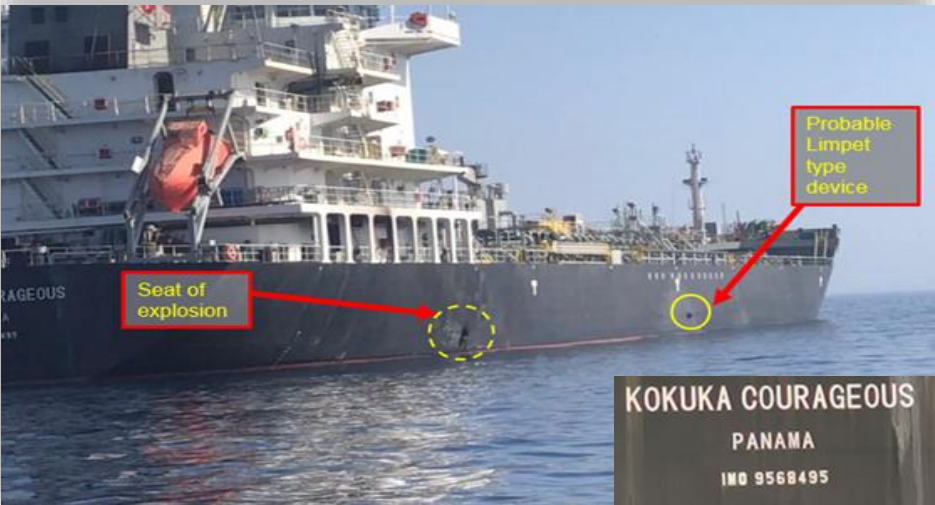
Post Blast Exploitation



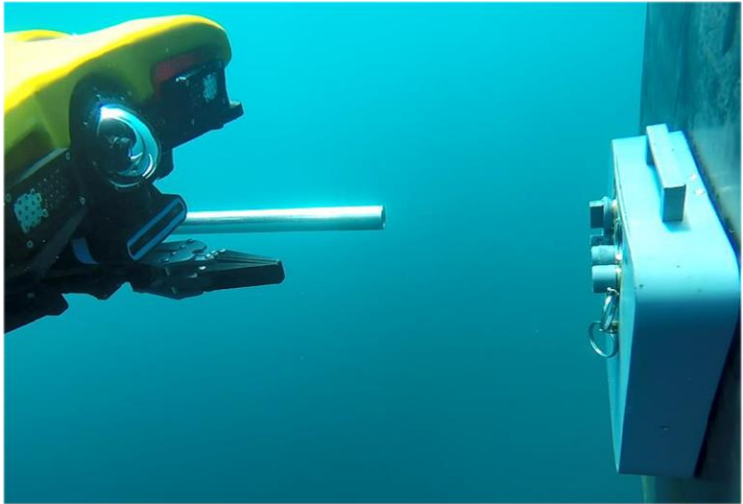
Initial point of impact of the unmanned aerial vehicle on the



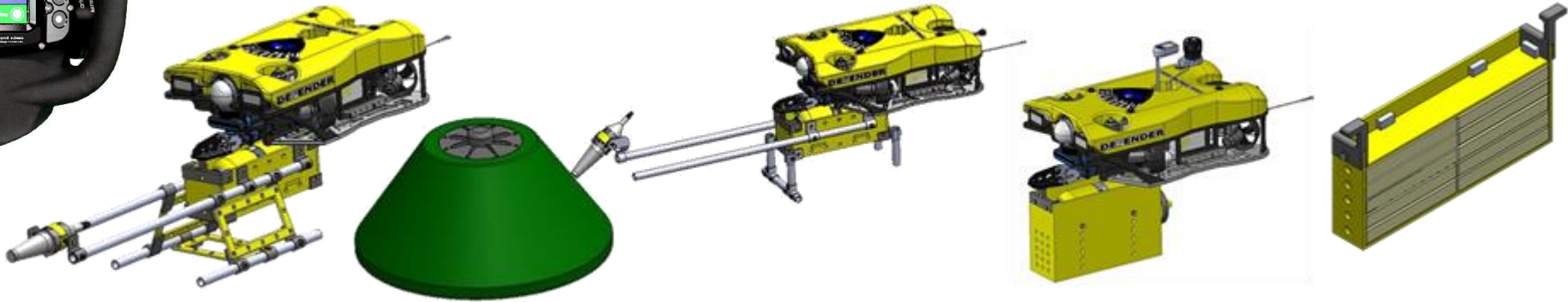
DTXG – Echo Squadron



Lethality: embracing and operationalising technology



seebyte
Multi-Domain Command & Control Autonomy
Mission Management Software





Questions

