

*Expanding the Advantage through Collaboration*

# *Launch and Recovery of a UUV from a MH-60S Helicopter*


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**Expanding the Advantage in the Littoral Battlespace**



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# UUV Launch and Recovery

- Navy is increasing its use of Underwater Unmanned Vehicles (UUV)
- Current delivery methods include launching from shore or from small craft





- **The Fleet is requesting the ability to launch and recover a UUV from an aircraft platform**
  - UUV base of operation not limited to port locations
  - UUV can be operationally deployed at longer ranges
  - Battery power can be conserved
  - Decreases mission timeline
  - Allows faster exploitation of data
  - Allows deployment and recovery in higher sea states
  - Removes the man from the mine field



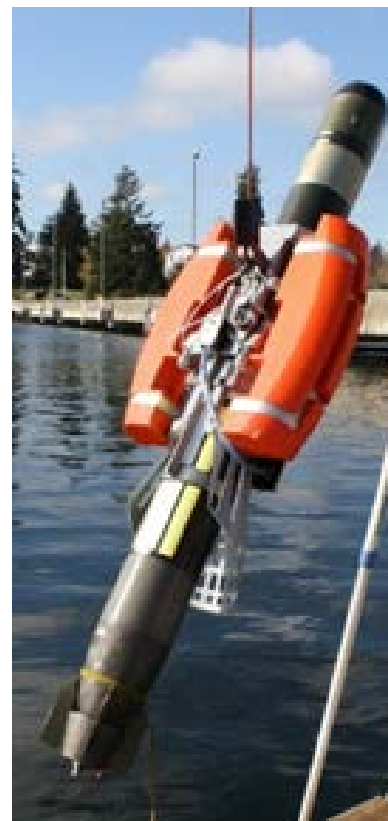
# Challenges of Helicopter Launch and Recovery

- **NAVAIR crash loading requirements**
- **Interface to the aircraft**
- **Automated docking device**
- **Winching**
- **AN/ALQ-223A Carriage Stream Tow and Recovery System**
  - ALMDS
  - AMNS



# ASQUID

- **Airborne Surface Quad-thruster Underwater Interface Device**
- **Developed under 219 funding also called Naval Innovative Science and Engineering (NISE) program**
- **Prototype level only**
- **Sized to deploy and recover a MK-18 Mod 2 Kingfish**



# ASQUID Operation

- Operated by air crewman with a control device (Xbox game controller)
- UUV is unpowered and floating on surface
- Aircraft maneuvers ASQUID to front of UUV
- Air crewman drives ASQUID onto UUV
- UUV locks into place
- Crewman winches UUV to side of aircraft





# Flight Test

- September 27, 2018
- Patuxent River Naval Air Station, HX-21





# Video



# Path Forward



- **Incorporate sub-surface active docking**
  - MK-18 Mod2 teams currently working various technology for automated docking
- **Incorporate scalability to accommodate various UUV sizes**
  - Limited by CSTRS and aircraft envelope and power
- **Develop standards for UUV docking features**