Maritime Unmanned Systems Technology

Science and Technology

EXPANDING MARITIME DOMAIN AWARENESS CAPABILITIES

The United States has the second largest exclusive economic zone (EEZ) in the world, with the U.S. Coast Guard (USCG) responsible for its safety, security, and stewardship. Untold American interests rest within the EEZ, ranging from border security to the 90% of foreign commerce that enters the United States via the zone, environmental concerns, resource management issues, and more.

The USCG seeks to protect those interests through enhancements to existing capabilities for maritime domain awareness (MDA). Currently, the USCG mainly accomplishes MDA through active and passive patrol and monitoring by USCG-manned vessels and aircraft. Although effective, manned asset missions are constrained by inherent resource limitations. Unmanned platforms could contribute to a layered approach to MDA.

PROVIDING UNMANNED SYSTEMS FOR USCG

The maritime industry is increasingly turning to unmanned surface vessels with innovative platforms and sensors to decrease costs and enhance efficiency and safety. For the USCG, unmanned systems afford the potential to complement manned assets by providing persistent MDA at a lower cost.

Increasing MDA can contribute to numerous USCG mission sets, including:

- Counter-drug
- Search and rescue
- Migrant interdiction
- Environmental monitoring
- Fisheries enforcement
- Enforcement of laws and treaties

In response to congressional interest in the benefits of unmanned systems, the U.S. Department of Homeland Security Science and Technology Directorate established the Maritime Unmanned Systems Technology (MUST) project. MUST seeks to exploit the novel capabilities of unmanned systems to increase the protection of the maritime domain by detecting surface and subsurface threats without the need of additional manpower.

MUST IMPACT FOR USCG

MUST provides the USCG the capacity to:

- Integrate unmanned systems to enhance surveillance capabilities in remote maritime environments.
- Increase capability to detect and deter illicit activities and assist public safety.
- Increase collaboration with other maritime domain stakeholders, including U.S. Customs and Border Protection, the Department of Defense, and state and local agencies, with maritime responsibilities.
- Inform USCG strategy to incorporate unmanned surface and subsurface vessels.

ACCOMPLISHMENTS

- Mission Use Cases Defined (FY20 Q1)
- Sensor Selection Finalization (FY20 Q4)
- Acceptance Testing of Fleet (FY21 Q4)
- Triton Performance Testing (FY22 Q3)
- Integration Testing (FY23 Q1)

UPCOMING MILESTONES

- Novel Mission Application Testing (FY23 Q4)
- Inform USCG Unmanned Systems Strategy (FY23 Q4)
- Modeling and Simulation Report (FY24 Q4)

PERFORMERS

- Cherokee Nation Strategic Programs, Arlington, VA
- U.S. Naval Research Laboratory, Stennis Space Center, MS
- University of Southern Mississippi, Gulfport, MS
- Ocean Aero, Inc., Gulfport, MS
- MITRE Corp., Bedford, MA