

Problem: Department of Homeland Security (DHS) components have limited ability to identify, prioritize, characterize and share actionable information and intelligence on maritime threats in a tactically relevant manner to support unity of effort and intelligence-driven operations across the Homeland Security Enterprise (HSE). DHS operating agencies have limited capability to detect, track and identify maritime threats such as Pangas, non-emitting small vessels and go-fast boats transporting contraband or people unlawfully into the United States. DHS operational components also need to leverage technology as a force multiplier to improve their operational effectiveness, improve efficiency and/or reduce operations and maintenance costs.



Drug smuggling Panga viewed through an infrared imager

Solution: The Port and Coastal Surveillance project contributes to the department's unity-of-effort initiative and develops solutions to improve maritime situational awareness by establishing an enterprise capability to (1) access more data sources, including space based sensors; (2) make available decision support tools to translate available data into actionable information and intelligence; and (3) share that actionable information and intelligence with federal, state, local, tribal, interagency and international partners (FSLTII). This project performs R&D to improve the ability of sensors and sensor systems to detect and track waterborne threats with improved detection rates and lower false alarms. Other project initiatives identify and develop technology to allow DHS operational components to more efficiently utilize and allocate resources and/or reduce their operations and maintenance costs.

Impact: This DHS Science and Technology Directorate (S&T) developed technology will improve operational effectiveness and enhance maritime domain awareness, leading to increased detections, interdictions and deterrence. Specifically, the increased effectiveness and situational awareness will result in:

- Improved measurement of illegal activity to understand current state and impacts from additional resources or other actions taken to improve security.

- Improved assessment of risks by identifying current threats, along with emerging patterns and trends
- Improved alignment of resources-to-risk for current and future operations on both a tactical and strategic level.

Current and Future Investments

- **Integrated Maritime Domain Enterprise/Coastal Surveillance System (MDE/CSS).** The goal of IMDE is to deliver a scalable unclassified HSE Information Sharing Architecture to facilitate sharing of actionable information between FSLTII partners. The goal of CSS is to demonstrate an initial maritime toolset built on the IMDE architecture, leveraging existing systems and new investments, with a web-delivered User Defined Operational Picture.
- **Space-based Technology.** Improve Maritime Domain Awareness by using government-owned and commercial space-based sensors to detect vessels, providing operational decision makers with timely information to act upon suspicious vessels approaching the U.S. coast.



Drug smuggling semi-submersible interdicted by the USCG

- **U. S. Coast Guard Science & Technology Innovation Center.** Collaboration effort between DHS S&T and the U.S. Coast Guard to enhance their operational effectiveness through integration/testing of innovative COTS/GOTS solutions.
- **Unmanned System Sensor Evaluation.** Evaluate unmanned systems for persistent surveillance beyond what manned assets can provide (days or months) and increased detection ranges in a cost efficient way.
- **Dark Vessel Detection (DVD).** DVD provides operational decision makers with timely information by successfully integrating and sharing existing sensors (space, air, land, sea) to consistently detect and track dark (non-emitting) vessels. DVD's enhanced capabilities shared with FSLTIIIP partners, will enable cohesive operational and tactical maritime interdiction operations. These enhanced capabilities will provide economical, effective and persistent domain awareness, leading to increased detections, interdictions and deterrence.

