Coast Guard UAS; Opening the Aperture

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09 April 2018
Immense Responsibilities

Exclusive Economic Zone (EEZ)

Statutory Missions

• Search and Rescue (SAR)
• Marine Safety
• Drug Interdiction
• Alien Migrant Interdiction Operations
• Ports, Waterways, and Coastal Security
• Living Marine Resources
• Marine Environmental Protection
• Defense Readiness
• Ice Operations
• Aids to Navigation
• Other Law Enforcement
Limited Resources

- Coast Guard is an Armed Force with a military workforce nearly 50,000 active duty and reservists
- Coast Guard engages in Law Enforcement and Defense operations around the world
- Because of our unique authorities and capabilities, the Coast Guard is the only Armed Force positioned outside the DoD
Leveraging Technology

• Since 2008, the Coast Guard has actively sought to leverage UAS technologies as a way to bridge the gap between our immense responsibilities and limited resources

• Tiered, layered approach to acquiring and employing UAS technologies
Long-Range Unmanned Aircraft Systems (UAS)

- Provides wide area surveillance for the Area Commander
- Beyond Line of Sight (BLOS) (SATCOM) C2 link
- >24 hour endurance, to include ultra-long endurance capabilities

Medium-Range UAS

- Provides on demand support for the tactical commander
- Beyond Visual Line of Sight (BVLOS) C2 link
- 12+ hour endurance

Short-Range UAS

- Personal, portable optic system
- Line of Sight (LOS) C2 link
- 20-30 minute endurance
LR-UAS Background

- USCG & CBP established Joint Program Office, NOV 08.
- USCG established UAS Stan Branch, JUL 09.
- First MQ-9 “Guardian” delivered to CBP, DEC 09.
- USCG crews provide continual support at Corpus Christi & Jacksonville National Air Security Op Centers.
- First narcotics bust, 15 SEP 11.
- Building support capability in all AORs.
LR-UAS Program Status

• Joint DHS program with Customs and Border Protection

• 8 USCG pilot, 9 USCG sensor operator billets

• Based in Corpus Christi, TX and Jacksonville, FL

MQ-9 Guardian

• Runway dependent
• 4900 lbs
• 24+ hr endurance
• SATCOM
LR-UAS Acquisition

- New technology advancements (2020+)
  - NAS operations
  - All-weather operations
  - High latitude operations
  - Increased autonomy (reduced manning)

- Any future acquisition will require a collaborative DHS UAS solution
MR-UAS Program – Efficient
MQ-8B Fire Scout

Potential Objective System
(Technology demo in DEC14)

Primary Drivers:

• Increased ISR footprint from UAS allows USCG to employ fewer NSCs than legacy WHECs.

• Cutter-based UAS has always been apart of NSC design capability.

• Cutter-based flight hour gap.

Bell Eagle Eye
Terminated 2007

Potential Solutions
(Technology demos in FY12, 13, 14)

Small UAS
MR-UAS Demos & Prototypes

• Aug12 (CGC STRATTON)
• May13 (CGC BERTHOLF)
• Feb14 (Wallops Island, VA)
• 2017 (CGC STRATTON)
• Feb18 (Puerto Rico)
Small UAS (sUAS) for NSC

- Prototype Operational Successes:
  - 16 interdictions
  - $350M of contraband seized
  - 55 suspects apprehended
- RFP results received
- Contract award Summer 2018
- 2-3 systems deployed by early 2019

- Catapult launched
- 50-80 lbs
- 12+ hr endurance
- 75-100 NM range
SR-UAS Program – Responsive
SR-UAS Efforts

• Robotic Aircraft for Maritime Public Safety (RAMPS) project, FY15-16.

• Requirements development for SR-UAS.

• NOAA Group 1 UAS deployments aboard CGC HEALY for Arctic Shield 2013, 14, 15.

• NOAA Group 1 UAS support for Operation

• Deep Freeze 2015. UAS for legacy cutters, small boats, & emerging/future surface fleets.
SR-UAS Program Status

• Man-portable, tactical sensor

• New addition to the original UAS concept

• Cost-effective capability to meet all CG missions

• GUPPI

- Hand-launched
- 0-20 lbs
- Limited range & endurance
SR-UAS Commercial Options

- Air Hogs Speeder Bike Drone
  - $39.00 - Walmart

- Yuneec Typhoon-H
  - $1,199.99 - Crutchfield
SR-UAS: Military Grade

- PD-100
  $52k
- Instant-Eye
  $25k
- SkyRanger
  $215k
- Indago 2/3
  $84k

- Price largely driven by military capability requirements
- Cyber-hardened
- Smaller is clearly not necessarily cheaper…
Program Challenges

- Airspace / Sense-and-Avoid Tech
- FAA / DoD Policy
- Data Management
- Cyber Security
- Manpower
- Acquisitions
- Environment
Coast Guard personnel rescued 11,022 people and 1,384 pets

- Coast Guard response involved:
  - 2,060 active duty, reserve, civil servant and auxiliary personnel from as far away as Guam, Alaska, and Hawaii
  - 50 rotary and fixed-wing aircraft
  - 75 shallow-water boats
  - 29 cutters
Hurricane Harvey Response