Coast Guard UAS Program

UAS Program Overview
LCDR Jeff Vajda, UAS Platform Manager
USCG Office of Aviation Forces (CG-711)

23 JUL 2012
Agenda

• Staff Organization
• Concept
• Missions
• Requirements
• Cutter-Based UAS
• Land-Based UAS
• Program Challenges
• Way Ahead
Who We Are – USCG in General

• Responsible for 97,000 miles of coastline and 50,000 miles of navigable waterways.

• Less than 45,000 active duty augmented with reservists, civilians, and auxiliarists.

• Equates to one Coast Guard member per 2 miles of coastline.

• Also responsible for 2 million square miles of Exclusive Economic Zone.
Orange = Dedicated UAS billets.

= Billets to be filled AY12.
<table>
<thead>
<tr>
<th>UAS Concept</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Land-Based UAS</strong></td>
</tr>
<tr>
<td><em>Strategic</em> MDA for the regional commander.</td>
</tr>
<tr>
<td><strong>18,000 feet (Positive Control Airspace)</strong></td>
</tr>
<tr>
<td>• Wide Area Surveillance to support Maritime Domain Awareness.</td>
</tr>
<tr>
<td>• Scheduled missions.</td>
</tr>
<tr>
<td>• 12-24 hour endurance.</td>
</tr>
</tbody>
</table>

| **Cutter-Based UAS** |
| Immediate *tactical* tool for the cutter. |
| **8,000 feet** |
| • Threat ID to support end-game interdiction. |
| • Real-time / On-demand missions. |
| • 5-8 hour endurance. |

Protecting America thru the early detection of dangerous people and goods, BEFORE they can penetrate our maritime borders.
Coast Guard UAS Missions

- Search and Rescue (SAR)
- Marine Safety (MS)
- Alien Migrant Interdiction Operations (AMIO)
- Ports, Waterways, and Coastal Security (PWCS)
- Marine Environmental Protection (MEP)
- Aids to Navigation (ATON)
- Drug Interdiction (DRUG)
- Defense Readiness (DR)
- Living Marine Resources (LMR)
- Other Law Enforcement (OLE)
- Ice Operations (ICE)
UAS Requirements

- Aviation’s contribution to Maritime Domain Awareness (MDA) measured in program flight hours per year.

- By 2016, manned assets unable to achieve total required flight hours.

- UAS will **augment** manned assets to fill this gap.

- UAS **not** intended to replace manned assets.
Cutter-Based UAS History/Way Ahead

Primary Drivers:

- Fewer NSCs needed due to increased shipboard capability.
- Cutter-based UAS is part of that capability.
- Cutter-based flight hour gap.

Potential Interim Solutions
(sUAS demo in AUG12)

MQ-8B Fire Scout

Objective System
(Ground Control Segment MIPR)

Bell Eagle Eye
Terminated 2007

ScanEagle
Integrator
Cutter-Based UAS CONOPS (WMSL)
Impact to NSC’s Prosecution Capability

• Cutter-based UAS to provide 70% (+/-) increase in surveillance area per NSC.

• Equates to significant increases along all elements across the prosecution chain:
  • Surveillance
  • Detection
  • Classification
  • Identification
  • Prosecution

• Modeling/simulation indicates potential 95% increase in prosecutions.
Potential Capability - MQ-8B Fire Scout

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length Folded</td>
<td>22.87 ft</td>
</tr>
<tr>
<td>Rotor Diameter</td>
<td>27.50 ft</td>
</tr>
<tr>
<td>Height</td>
<td>9.42 ft</td>
</tr>
<tr>
<td>Gross Weight</td>
<td>3,150 lbs</td>
</tr>
<tr>
<td>Engine</td>
<td>RR 250-C20W</td>
</tr>
<tr>
<td>Speed</td>
<td>125+ Knots</td>
</tr>
<tr>
<td>Ceiling</td>
<td>20,000 ft</td>
</tr>
<tr>
<td>Flight Time (baseline payload)</td>
<td>8+ Hours</td>
</tr>
<tr>
<td>Flight Time (500 lb payload)</td>
<td>5+ Hours</td>
</tr>
<tr>
<td>Sensors</td>
<td>Telephonics 1700B Radar</td>
</tr>
<tr>
<td></td>
<td>Brite Star II EO/IR</td>
</tr>
<tr>
<td></td>
<td>AIS Transceiver</td>
</tr>
</tbody>
</table>
Interim Capabilities – Small UAS (sUAS)

General Characteristics

• Aircraft Type: Single-engine, fixed-wing
• Payloads: EO, IR, AIS, comms relay
• Link type: Line-of-sight
• Range: 50-100 nm
• Endurance: 20+ hours
• Altitude: 2,000’ AWL
• Airspeed: 60+ knots
• NAVAIR certified for multiple ship classes
• Man portable
• Desktop “control station”
• Cost effective
Land-Based UAS CONOPS
## Current Capabilities – MQ-9 Guardian

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length Folded</td>
<td>33 ft</td>
</tr>
<tr>
<td>Wingspan</td>
<td>67 ft</td>
</tr>
<tr>
<td>Max Gross Weight</td>
<td>10,500 lbs</td>
</tr>
<tr>
<td>Engine</td>
<td>Honeywell TPE 331-10T</td>
</tr>
<tr>
<td>Speed</td>
<td>240 Knots</td>
</tr>
<tr>
<td>Ceiling</td>
<td>Up to 50,000 ft</td>
</tr>
<tr>
<td>Flight Time</td>
<td>Up to 20 hrs</td>
</tr>
<tr>
<td>Sensors</td>
<td>Raytheon SeaVue Radar (w/NAVSEA upgrade), EO/IR, AIS, 2 X ARC-210</td>
</tr>
</tbody>
</table>
Program Challenges

- Funding
- Airspace
- Data Management
- Sensor Integration
- Bandwidth
- Production Lead Time
Way Ahead

• Reduce development/cost risk thru continued partnerships.

• Continued Experience = TTP, policy, regulations.

• Adhere to Major Systems Acquisition process.

• Complete foundation documents.

• sUAS interim strategy.

• sUAS demo in FY12/13.
Questions?

The twentieth century was the era of **manned** aviation...

...the twenty-first century is the era of **unmanned** aviation.