



USCG Office of Aviation Forces
Unmanned Aircraft Systems (UAS)

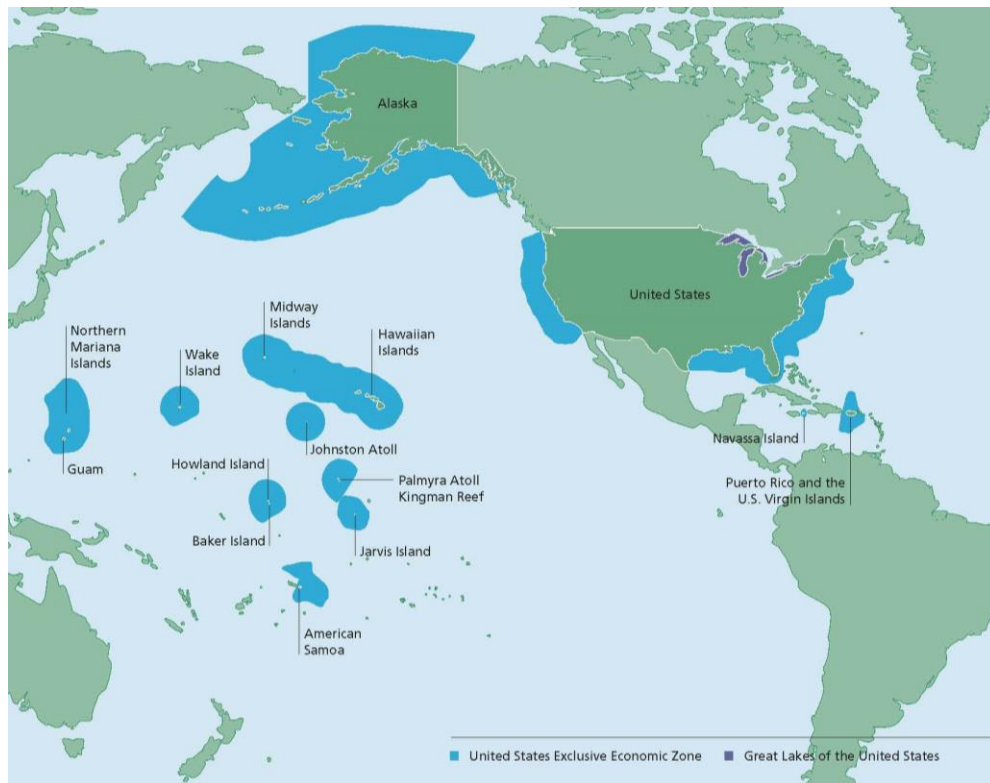


Coast Guard UAS; Opening the Aperture

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USCG Office of Aviation Forces (CG-7114)

09 April 2018

Exclusive Economic Zone (EEZ)



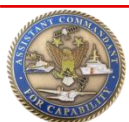
Statutory Missions

- 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



United States Coast Guard

*Assistant Commandant
for Capability*

- 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



50,000'

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



5000'

Medium-Range UAS

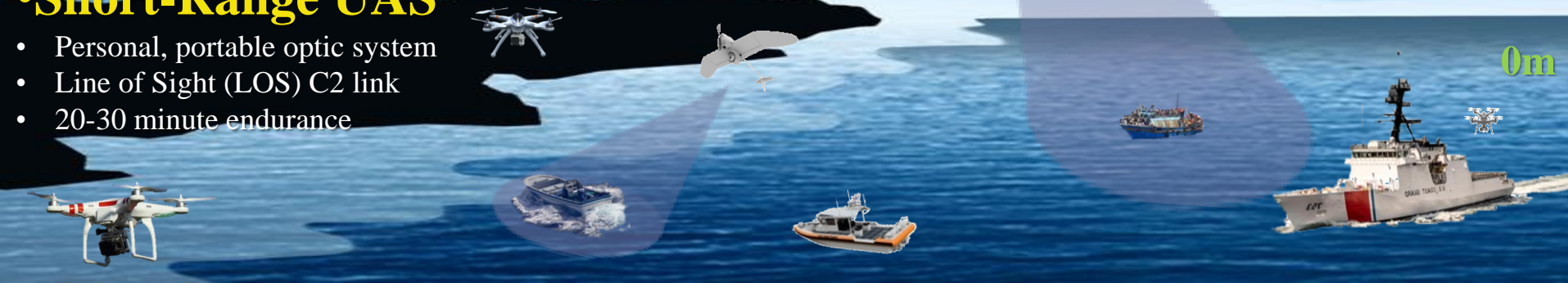
- Provides on demand support for the tactical commander
- Beyond Visual Line of Sight (BVLOS) C2 link
- 12+ hour endurance



1200'

Short-Range UAS

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



0m

LR-UAS Program – Joint



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

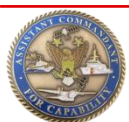


MQ-9 Guardian



- **Joint DHS program with Customs and Border Protection**
- **8 USCG pilot, 9 USCG sensor operator billets**
- **Based in Corpus Christi, TX and Jacksonville, FL**

- **Runway dependent**
- **4900 lbs**
- **24+ hr endurance**
- **SATCOM**



United States Coast Guard

*Assistant Commandant
for Capability*

- **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



MR-UAS Program - Background

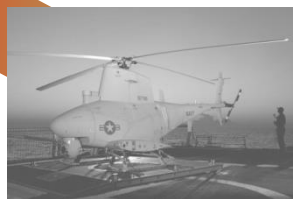


Bell Eagle Eye



Terminated 2007

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.

Small UAS



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

MR-UAS Demos & Prototypes



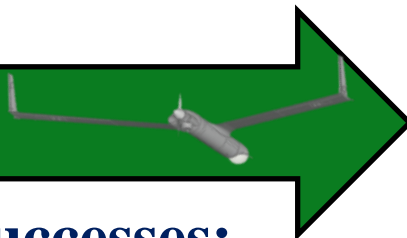
- Aug12 (CGC STRATTON)
- May13 (CGC BERTHOLF)
- Feb14 (Wallops Island, VA)
- 2017 (CGC STRATTON)
- Feb18 (Puerto Rico)



MR-UAS Program Status



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



- **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



SR-UAS



- 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



Hurricane Harvey Statistics



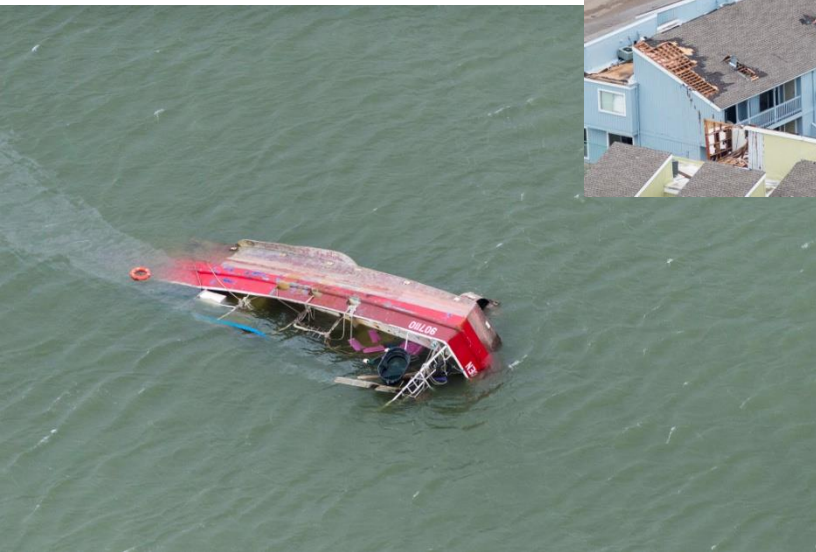
Coast Guard personnel rescued 11,022 people and 1,384 pets

– 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



Hurricane Harvey Response



Hurricane Harvey Response

