USCG Office of Aviation Forces

Unmanned Aircraft Systems (UAS)

Coast Guard UAS Program

UAS Program Overview

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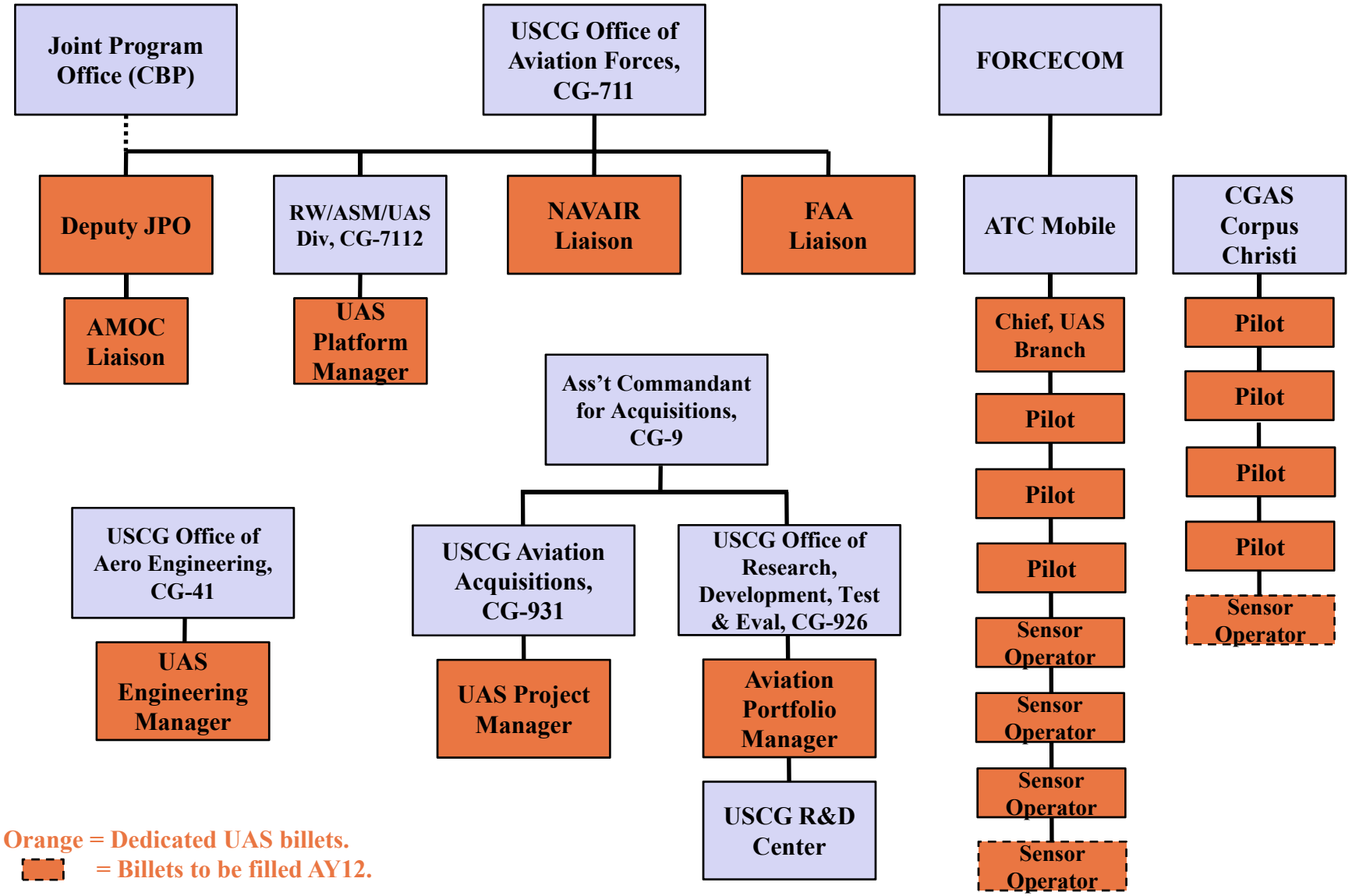
Agenda

- 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.

UAS Staff Organization



Orange = Dedicated UAS billets.
= Billets to be filled AY12.

UAS Concept

Land-Based UAS

Strategic MDA for the regional commander.

18,000 feet (Positive Control Airspace)

- Wide Area Surveillance to support Maritime Domain Awareness.
- Scheduled missions.
- 12- 24 hour endurance.

Cutter-Based UAS

Immediate tactical tool for the cutter.

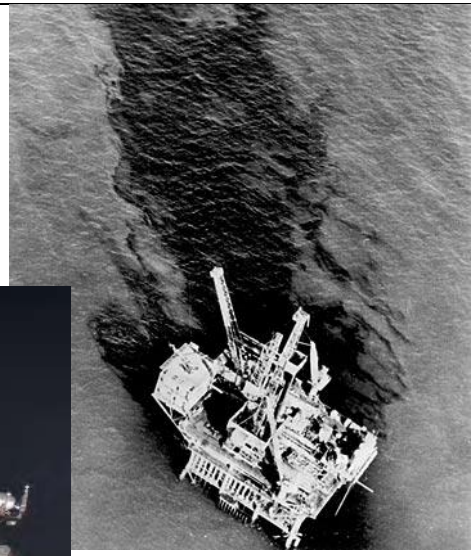
8,000 feet

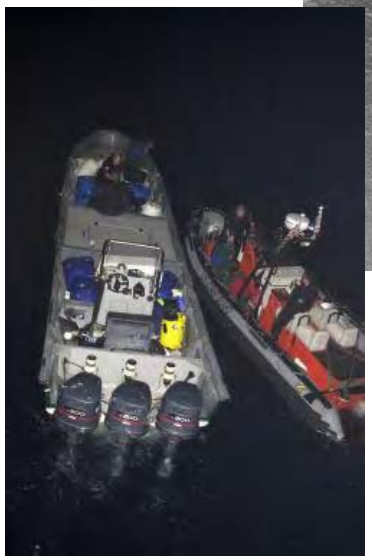
- Threat ID to support end-game interdiction.
- Real-time / On-demand missions.
- 5-8 hour endurance.

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)





Maritime Domain Awareness

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

Bell Eagle Eye

Terminated 2007

ScanEagle

Integrator

Potential Interim Solutions
(sUAS demo in AUG12)

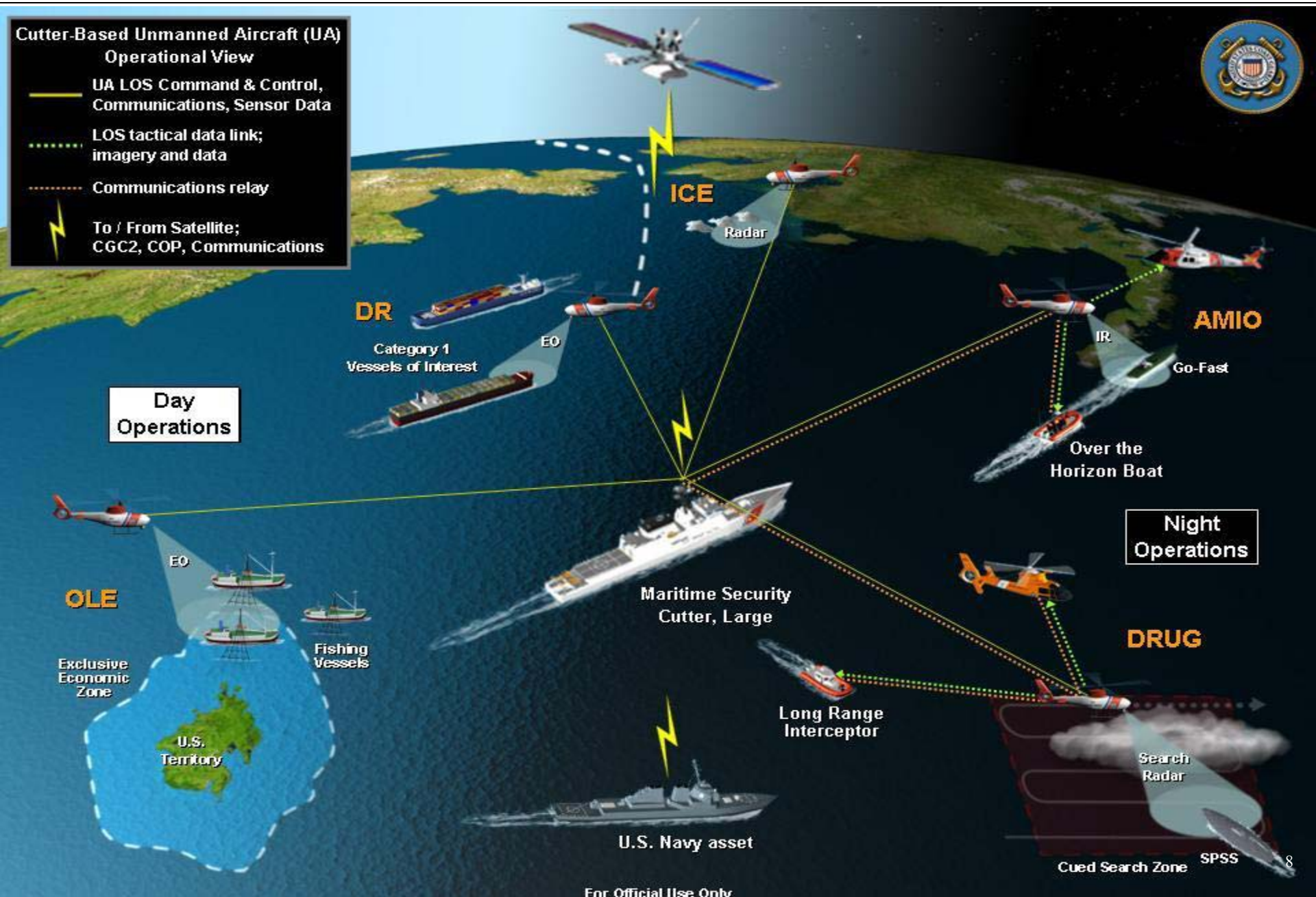
MQ-8B Fire Scout

Objective System
(Ground Control Segment MIPR)

Primary Drivers:

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

Cutter-Based UAS CONOPS (WMSL)

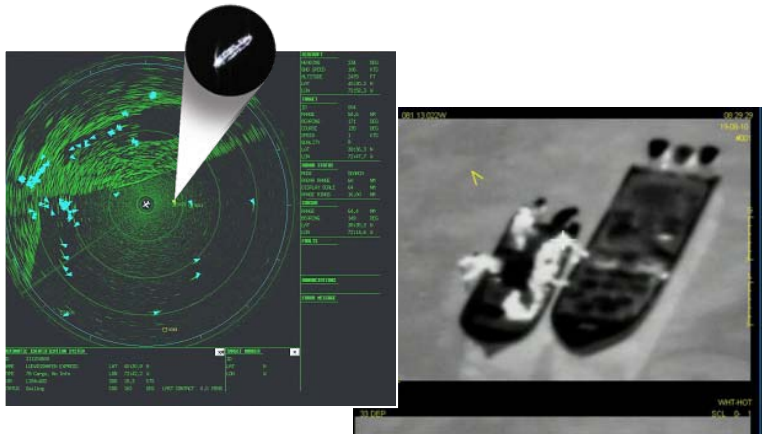


Impact to NSC's Prosecution Capability

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

- **Equates to significant increases along all elements across the prosecution chain:**

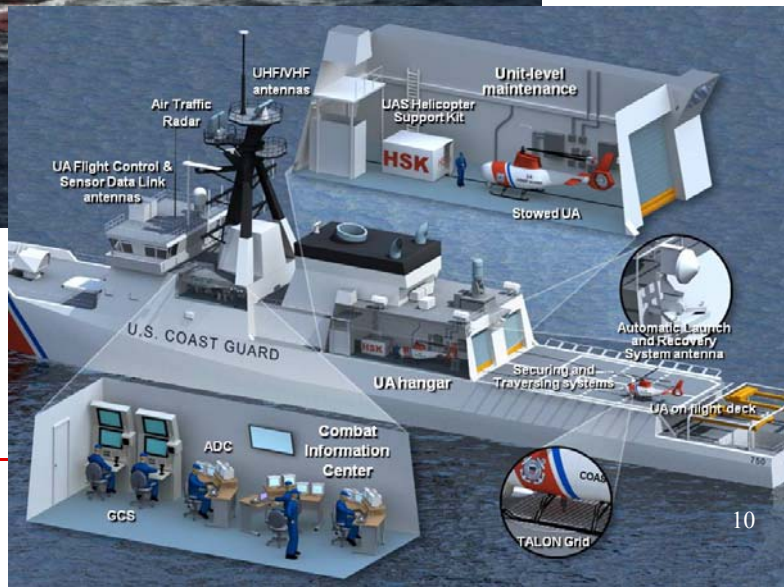
  - **Surveillance**
  - **Detection**
  - **Classification**
  - **Identification**
  - **Prosecution**



- **Modeling/simulation indicates potential 95% increase in prosecutions.**

Potential Capability - MQ-8B Fire Scout

Length Folded	**22.87 ft**
Rotor Diameter	**27.50 ft**
Height	**9.42 ft**
Gross Weight	**3,150 lbs**
Engine	**RR 250-C20W**
Speed	**125+ Knots**
Ceiling	**20,000 ft**
Flight Time (baseline payload)	**8+ Hours**
Flight Time (500 lb payload)	**5+ Hours**
Sensors	**Telephonics 1700B Radar** **Brite Star II EO/IR** **AIS Transceiver**

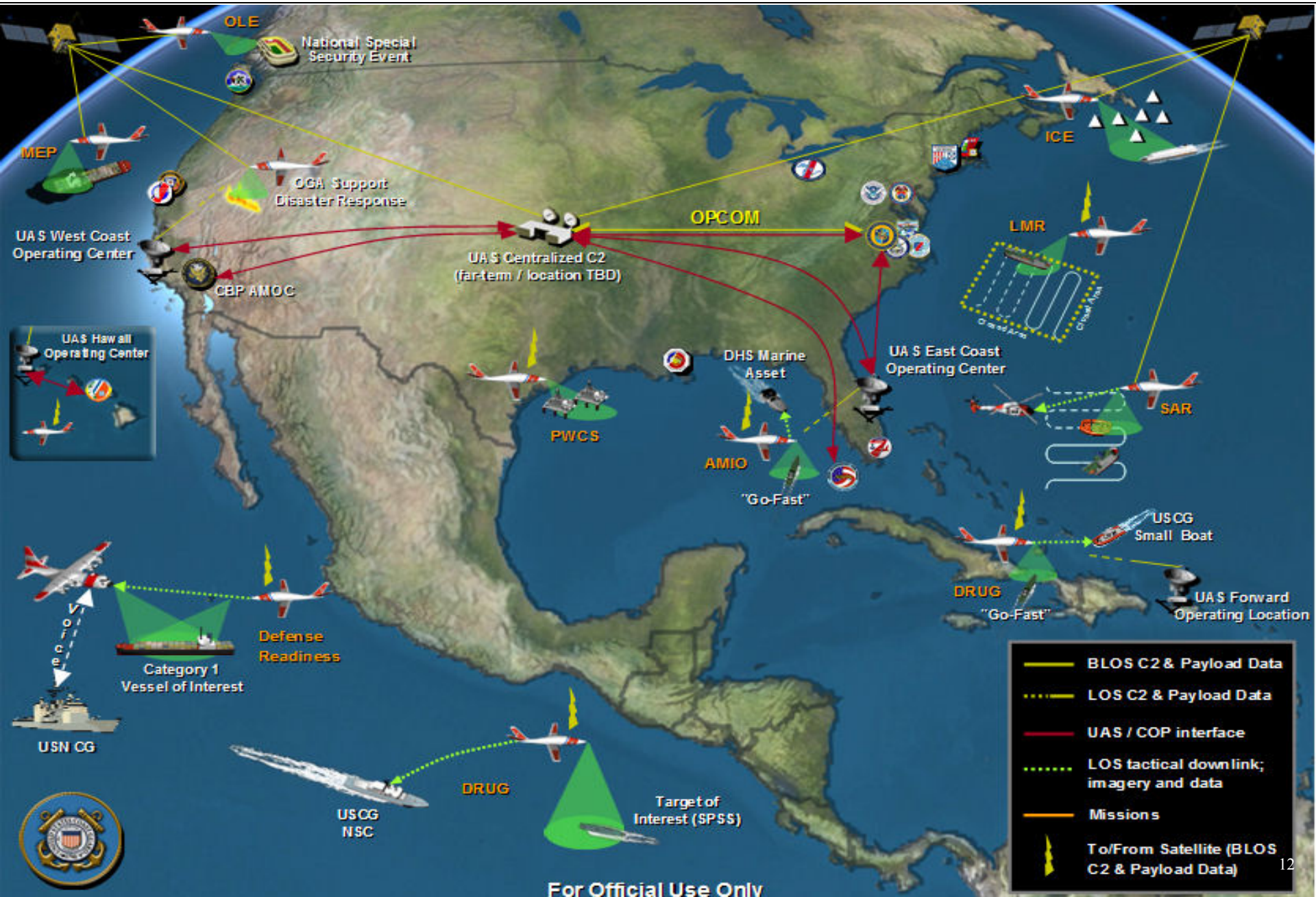


Interim Capabilities – Small UAS (sUAS)

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

Length Folded	**33 ft**
Wingspan	**67 ft**
Max Gross Weight	**10,500 lbs**
Engine	**Honeywell TPE 331-10T**
Speed	**240 Knots**
Ceiling	**Up to 50,000 ft**
Flight Time	**Up to 20 hrs**
Sensors	**Raytheon SeaVue Radar (w/NAVSEA upgrade), EO/IR, AIS, 2 X ARC-210**

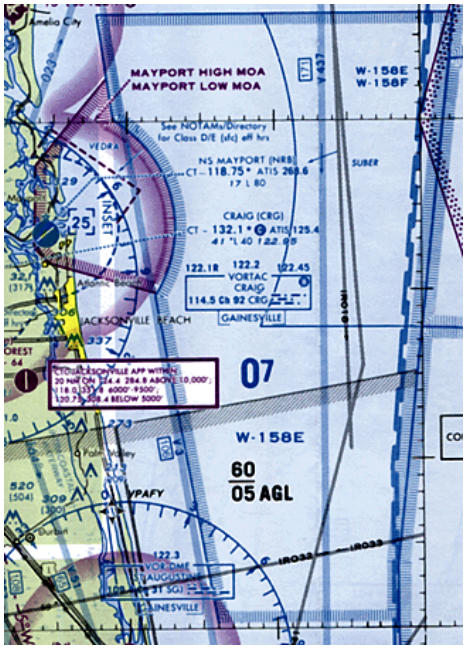
Program Challenges

-Funding

-Airspace

-Data Management

-Sensor Integration



-Bandwidth

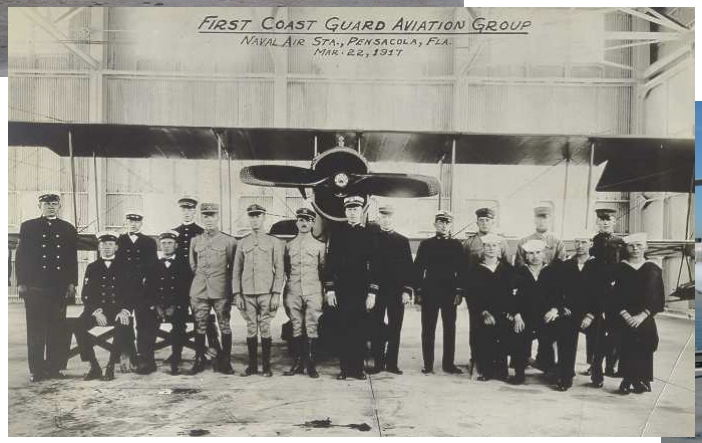
-Production Lead Time

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.