



OMAO/AOC sUAS Operations



Overview of sUAS Operations November 6, 2019

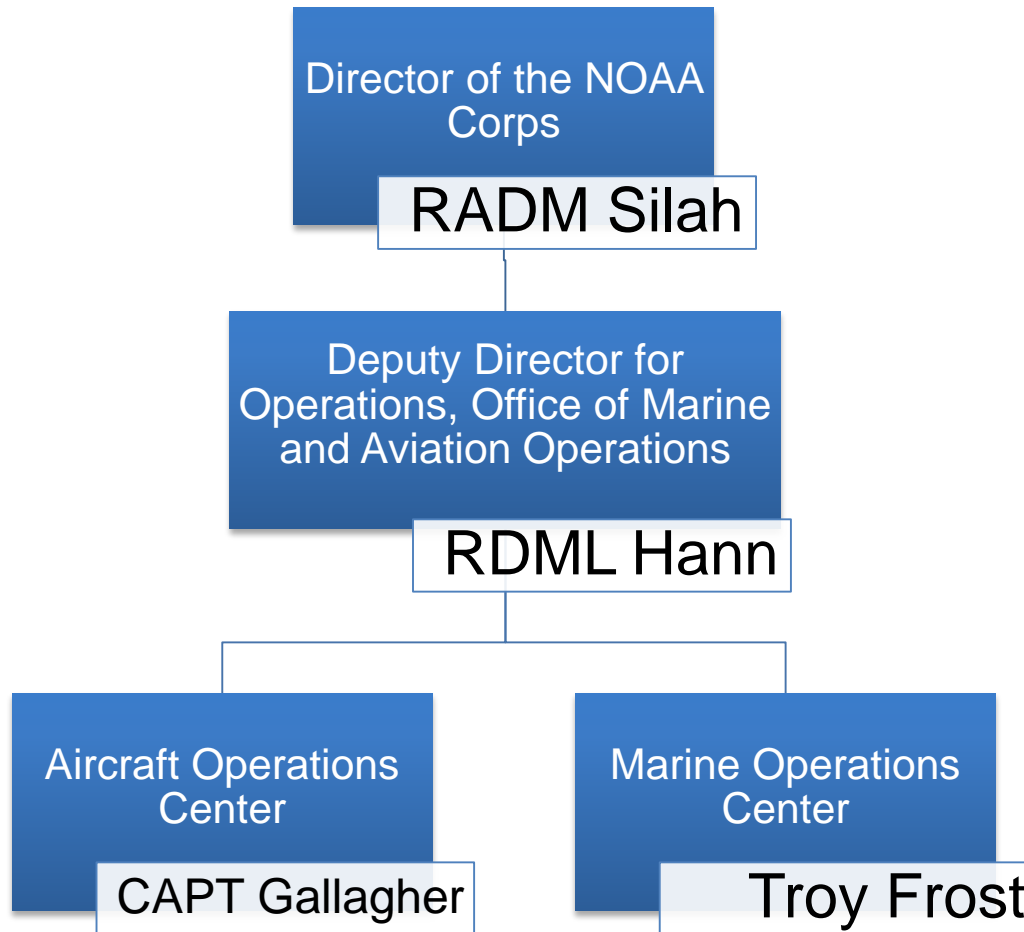
LT Casey Marwine
NOAA Aircraft Operations Center



Office of Marine and Aviation Operations



Organizational Structure





OMAO UAS Staff



- CDR Jon Neuhaus AOC UAS Section Chief
- LT Casey Marwine AOC UAS Section
- LT Bill Carrier AOC UAS Section
- Mark Rogers AOC UAS Section
- LTJG Nicole Chappelle AOC UAS Section
- UAS Inspector New Hire 2019
- UAS Trainer New Hire 2019





OAR UAS Program Office



- CAPT Phil Hall, Director
- Dr. Gary Wick, Deputy Director
- Ken Vierra, Contract Support
- John Walker, Contract Support



Office of Marine and Aviation Operations



Scope of UAS Oversight



- NOAA Administrative Order (NAO) 216-104A
- NOAA Aircraft Operations Policy 220-1-5 Unmanned Aircraft Systems Operations (UAS)
- NOAA Unmanned Aircraft System Handbook
 - Helps guide users through the process of a UAS operation





The Small UAS Rule (Part 107)



- First operational rules for routine operation of small UAS (<55 pounds)
- In effect for NOAA on October 20, 2016
- Recreational operators may fly under part 107 or Public Law 112-95 Section 336 criteria





Remote Pilot Certification



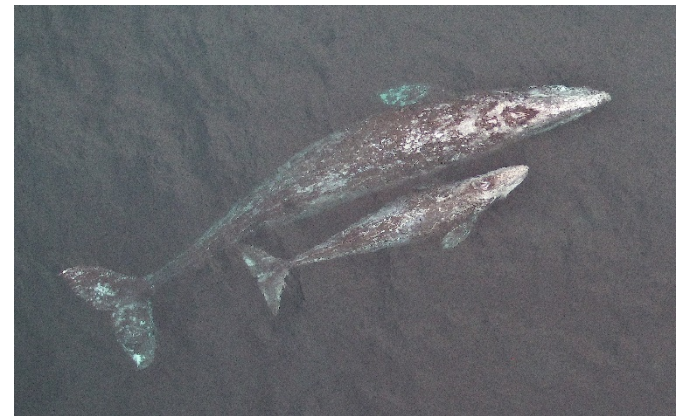
- Must be at least 16 years old
- Must read, write, and speak English
- Must pass an aeronautical knowledge exam at an FAA-approved Knowledge Testing Center
 - Part 61 certificate holders can take online training at faasafety.gov instead of the knowledge exam
- Must undergo TSA background security screening





The Basics

- Commercial operations
- Rules for part 107
 - Operating within visual line of sight
 - Under 55lbs
 - Daylight
 - Less than 100mph
 - Below 400ft AGL
- Flight in Controlled airspace
 - Class B, C, D, E with ATC permission





Airspace



- **National Airspace** — The airspace in the US is commonly referred to as the National Airspace.
- **Special Use Airspace** — This airspace is controlled by an agency other than the FAA. The majority of Special Use Airspace (SUAS) is controlled by the military.
- **International Airspace** — International airspace refers to that airspace in the oceanic regions that are greater than 12nm offshore.
- **Foreign Airspace** — Airspace of another country. Operations in Foreign Airspace are required to comply with the respective country's laws.
- **Null Airspace** — Airspace that no country claims or controls. Rare. Part of Antarctica and Western Pacific off Mexico.





National Airspace



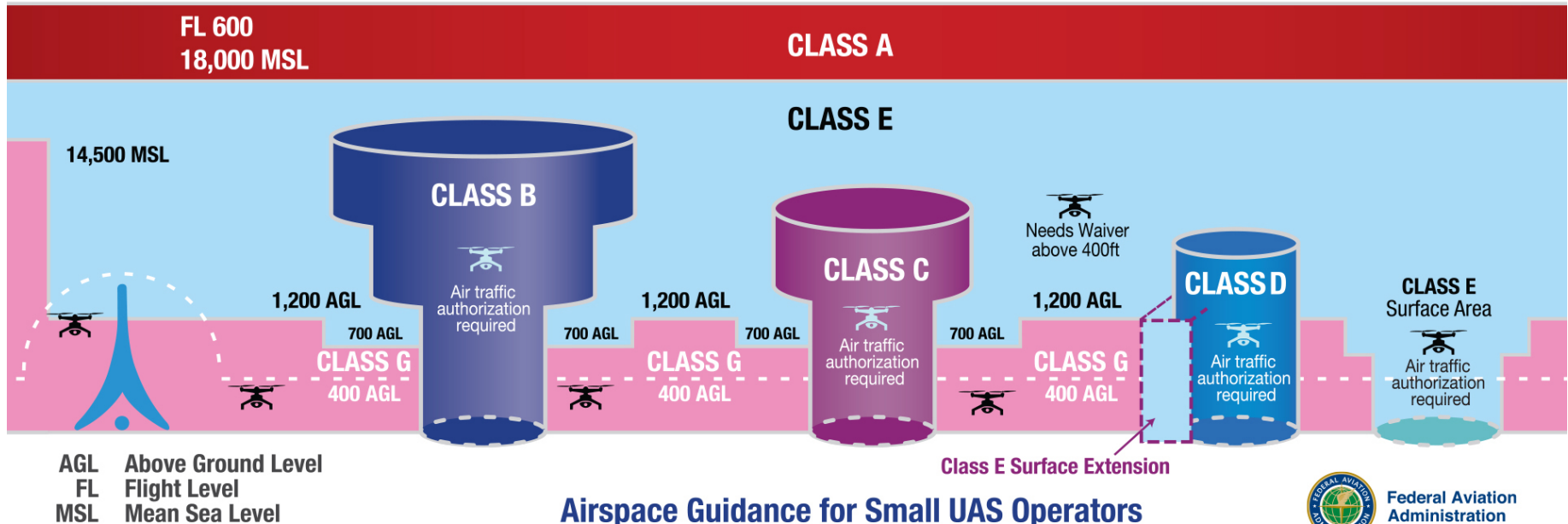
Upper Limit Undefined

CLASS E

FL 600
18,000 MSL

CLASS A

CLASS E



Airspace Guidance for Small UAS Operators



Federal Aviation
Administration



Office of Marine and Aviation Operations



Where to Fly

- ***RULE OF THUMB:*** *The greater the complexity of an operation, the longer the lead time will need to be. Examples:*
- **NOAA-FAA Blanket COA, or Part 107** *EASY (2 Weeks)*
- **Class G airspace**
 - Below 1,200ft (Part 107 400ft Max)
 - Visual line of sight
 - Notice to airman (NOTAM)
- **NOAA FAA COA/Part 107 waiver** *TAKES TIME (3 months once the COA submitted)*
 - Everything else
 - OMAO lead time requirement 120 days prior to start date
 - FAA requires 60 *business* days to process
- **Special Cases** *HARDER (Case by Case)*
 - BVLOS
 - Emergency COA





Maximum Altitude and distance from airports (Part 107, NOAA ORM, LAANC, Blanket COA)



- NOAA Wide Area
ORM

- Ops beyond 2nm from civil airports
 - Below 400ft AGL
 - GCS distance will be reviewed on a case by case basis
- Ops within 0-2nm from civil airports
 - At or below 200ft AGL and less than 0.25nm from GCS
 - Ops up to 400 ft AGL under LAANC system
- Ops within 3nm of heliport, civil, military or Private airport shall be coordinated

- Class G MOA

- Max altitude 1200ft AGL
- 5nm from controlled airports
- 3nm from airports with instr. Approach
- 2nm w/o instr. Approach or tower
- 2nm from heliport
- Distances from GCS will be reviewed on a case by case basis



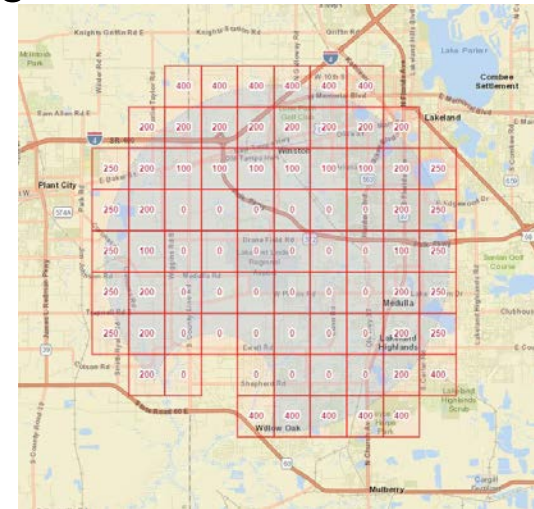


FAA UAS LAANC

(Low Altitude Authorization and Notification Capability System)



- FAA UAS LAANC System
 - Real time airspace authorization in pre approved zones and altitudes
- Download an approved app
 - Ex: AIRMAP
 - select part107 or recreational
 - Maps out and explains airspace and requirements, restrictions
- Uses the GPS location of your phone
 - plan for a future location
 - Series of questions about your flight





Waivable Provisions of Part 107



- Operation from a moving vehicle or aircraft (§ 107.25)
- Daylight operation (§ 107.29)
- Visual line of sight aircraft operation (§ 107.31)
- Visual observer (§ 107.33)
- Operation of multiple small UAS (§ 107.35)
- Yielding the right of way (§ 107.37(a))
- Operation over people (§ 107.39)
- Operation in certain airspace (§ 107.41)
- Operating limitations for small UAS (§ 107.51)

Online portal available at <https://faadronezone.faa.gov/#/>





NOAA Operations



- What makes my operation a NOAA operation?
 - UAS operated from a NOAA vessel or property
 - UAS Operations operated or directed by a NOAA federal employee
 - UAS that are owned by NOAA





Conducting a UAS Mission



- MC –AOC designated Mission Commander
- PIC – AOC Designated Pilot in Command
- Airworthy UAS designated by AOC
- Flight Authorization Memo
- Notice of intent to fly
 - Submitted by Principal Investigator
- Federal Policy Checklist
 - Signed by Line office Representative





Pilot Qualifications and Certification



AOC Requirements:

- **Pilot in Command (PIC):**
 - PIC designation letter signed by CO of AOC
 - Original equipment manufacturer (OEM) training
 - Part 107 sUAS license
- **Mission Commander (MC):** The mission commander shall need the following:
 - Federal Employee
 - Flight readiness review (FRR)
 - Review and understand the following documents:
 - 220-1-5 AOC UAS Operations policy
 - 14 CFR Part 107
 - Notice of intent to fly form
 - Wide area ORM policy
 - NOAA UAS Handbook
 - Federal policy checklist
 - MC designation letter signed by CO of AOC





Other NOAA Crew Member Designations



NOAA Principal Investigator (PI):

-The PI is the overall lead of the operation. The PI is responsible for the initial request submission, (UAS Notice of intent to fly Form) Logistical components as well as providing any additional information required from AOC.





Pilot Qualifications and Certification



Supplemental Pilot Requirements:

- SP receives OEM training on the UAS platform
- Under the direct control of a qualified PIC
- If at any point the PIC is not physically present or unable to provide direct oversight the SP must be a fully qualified PIC or cease operations.

Visual Observer (VO) Requirements:

- The VO is the person designated to supplement situational awareness and maintain visual line of sight (VLOS) with seeing and avoiding other air traffic or object aloft or on the ground.





Contract Pilot Qualifications and Certification



Contract Pilot Requirements:

- Certain UAS activities, as defined by AOC policy 220-1-5, are categorized as contracted services. These operations can include operations where NOAA has a reduced level of risk in operations, does not operate the airframe, does not provide operational support, and does not apply for any land owner or airspace clearances. In these operations that are funded by NOAA and entirely run by contracted services, an approval package with all operational planning information will be submitted to the AOC UAS section.





NOAA Airworthy UAS



VTOL Aircraft

- APH-17
- APH-22
- APH-28
- APO-42
- MD4-1000
- DJI S-1000
- Matrice 210
- Matrice M600
- Mavic Pro
- Phantom 4
- 3DR Solo
- Meteodrone
- Splashdrone
- Planck Shearwater



Fixed Wing/Hybrid

- Aerovironment PUMA
- Blackswift S1 & S2
- Firefly 6 Pro
- Sensefly Ebee
- Latitude HQ-55

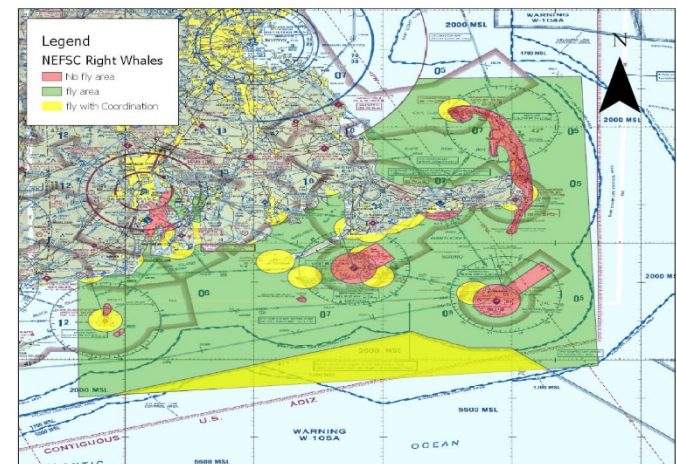
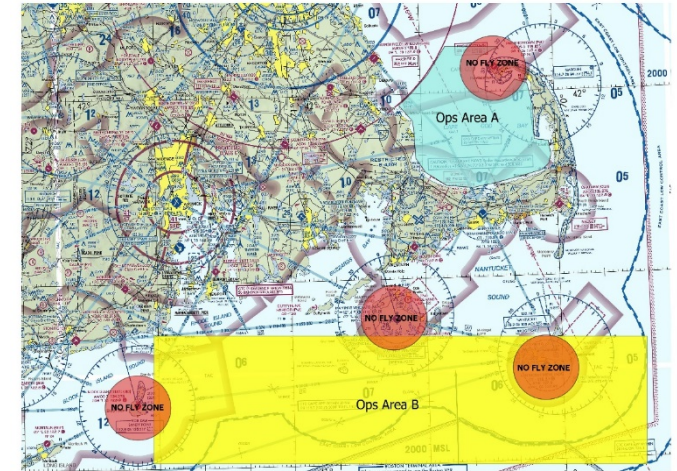




Submit to AOC



- **Notice of intent to fly**
 - Dates of operation
 - Areas of operation
 - PIC and MC
- **Federal Policy Checklist**
 - Signed by your line office representative
 - Maybe include a blank checklist





Do I fall under the Wide Area ORM?



- Is your project within the confines of Part 107?
- Do you need a Part 107 Waiver?
- Do you need an FAA COA?





Questions and Contact



If you have any questions please send and email to

AOC.UAS@noaa.gov

