

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION



FWC Small Unmanned Aircraft Systems (sUAS) Use and Safety Manual

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1. Purpose

Per [IMPP 1.35](#), this manual establishes requirements and minimum safety standards for FWC use of small, unmanned aircraft systems (sUAS) solely for the non-law enforcement purposes of fish and wildlife management and conservation currently allowed for by §934.50 F.S. Additional Division-specific requirements may also apply.

2. Definitions

FWC sUAS Use and Safety Manager (sUAS Safety Manager) – Employee assigned the responsibility for safety policy compliance throughout FWC.

sUAS Use and Safety Liaisons (Liaisons) – Employee(s) appointed by each Division/Office (D/O) director who coordinate with the **sUAS Safety Manager** and are responsible for overseeing compliance with this manual and all division-specific requirements for those staff they represent.

sUAS Field Leader (Field Leader) – FWC employee or volunteer who is the leader of a field data collection operation/project using a sUAS.

sUAS Pilot in Command (Pilot) – FWC employee or volunteer (vetted by Field Leader or other appropriate personnel) who holds Federal Aviation Administration (FAA) Part 107 Remote Pilot Certificate (i.e., License) and has successfully completed FWC-approved sUAS use and safety training.

sUAS Person Manipulating the Controls (Controller) – FWC employee or approved volunteer manipulating the controls (i.e., flying) of an sUAS.

FWC Drone Fleet Management System – Computer and mobile app-based, or similar, system for the deposition of all flight information (e.g., Field sUAS Use, daily flight plans, certifications, permits, logs, etc.) related to FWCs use of sUAS.

sUAS Observer (Observer) – Employee or volunteer who is responsible for maintaining visual contact with the sUAS during a flight.

sUAS Flight Plan – Information associated with the actual use of a sUAS (e.g., flight location, estimated flight times, flight durations, registration number of sUAS used). Information is submitted to the **FWC Drone Fleet Management System** by the **Pilot** prior to launch whenever possible.

FWC sUAS Standing Team – Cross divisional team responsible for addressing evolving issues and standards concerning the possession and use of small, unmanned aircraft systems (drones) by FWC employees, volunteers, and contractors.

3. Applicability

This manual applies to all non-Law Enforcement FWC employees and approved volunteers operating FWC and non-FWC owned sUAS on FWC work time.

4. Manual

A. General Overview

The FWC **sUAS Safety Manager** will provide overarching guidance to ensure all basic operating and safety rules are defined and followed as well as all necessary certifications are acquired and maintained. Responsibilities of the **sUAS Safety Manager** include:

- Distributing state and federal regulations, policy modifications, and related materials to FWC staff;
- Coordinating or facilitating sUAS use and safety trainings;
- Adding/maintaining Pilots and Managers to the **FWC Drone Fleet Management System**. [DroneLogbook](#) is **FWC's Drone Fleet Management System**. The purpose of this system is to expedite and centralize entry, organization, and archiving of FWC sUAS-related flight information.
- Ensuring that Part 107 license numbers and records of any additional employee or approved volunteer training or certifications related to sUAS are recorded in the **FWC Drone Fleet Management System**;
- Leading the FWC sUAS Standing Team.

D/O directors will designate at least one employee to serve as a **Liaison** for their D/O. Liaisons may represent more than one D/O upon approval of the respective directors. These **Liaisons** will coordinate with the **sUAS Safety Manager**, oversee compliance of their D/O staff with this manual and division-specific requirements, and coordinate or facilitate appropriate training in sUAS operation and safety for their D/O staff. Liaisons have the following responsibilities:

- Supports actions of and coordinate with the sUAS Safety Manager;
- Ensures Policy compliance within the respective D/O;

- Familiarizes new sUAS operators within the D/O with the sUAS Use and Safety Manual, division-specific requirements, and the **FWC Drone Fleet Management System**;
- Confirms their D/O staff are uploading sUAS flight use data to the **FWC Drone Fleet Management System**;
- Ensures that staff and approved volunteers are aware of and comply with all FWC procedures related to safe sUAS operations;
- Notifies appropriate D/O leadership of actions needed in case of an emergency related to the use of a sUAS;
- Serves as a member of the sUAS Standing Team.

Each field crew using sUAS will have a **Field Leader** who will oversee the safe implementation of overall field operations (not just sUAS related activities). **Field Leaders** do not need to be in the field for each flight unless they also are functioning as the **Pilot in Command** or **Controller**.

Field Leaders have the following responsibilities:

- Ensures that any FWC staff or volunteer performing the function of **Pilot in Command** holds a valid FAA Part 107 Remote Pilot Certification from the FAA or falls under any existing agency Certificate of Waiver or Approval (COA) and that the **Person Manipulating Controls** is trained to do so and familiar with related FWC rules and policies;
- Ensures that whenever possible, sUAS Flight Plans are filed via the **FWC Drone Fleet Management System** prior to launches;
- Ensures that express written permission to fly and/or collect data using an sUAS is obtained from all applicable owners, tenants, occupants, invitees, or licensees of private property before a sUAS is flown over that property;
- Ensures field sUAS use data is uploaded to the **FWC Drone Fleet Management System** within 14 days of flight completion;
- Is responsible for coordinating the provision of data in the event of a Public Records Request.

The **Field Leader** has full authority to terminate the use of any sUAS being used on a project if any problems are discovered with the flight worthiness or privacy maintenance systems of an sUAS or the competency of the **Pilot in Command** and keep the sUAS grounded until conditions that caused the grounding are reconciled.

Note: In the event of an imminent accident or safety breach, any member of the team may terminate a flight based on their determination of unsafe conditions.

The **sUAS Pilot in Command (Pilot)** is an FWC employee or volunteer (vetted by Field Leader or other appropriate personnel) who holds a valid Federal Aviation Administration (FAA) Part 107 Remote Pilot Certificate (i.e., License) This certificate demonstrates that the Pilot understands the regulations, operating requirements, and procedures for safely flying drones. Additionally, the Pilot must take manufacturer-provided training or, if none is available, be thoroughly familiar with the operator's manual for the specific sUAS in use. The **Pilot** must be physically present in the field for sUAS to be flown and has the following responsibilities:

- Responsible (via Federal Regulations) for all sUAS activities related to the operation of the sUAS in the field including ensuring the sUAS is airworthy before each flight, ensuring all personnel present during flight are briefed on operations, reviewing the Pre-flight Checklist as well as any program-specific safety or operational checklists, and making the decision on whether to fly.
- Submits sUAS Flight Plans through the **FWC Drone Fleet Management System** prior to launch whenever possible and uploads flight data to the **FWC Drone Fleet Management System** within 14 days of flight completion. (**Pilot** can delegate this responsibility to another person.)
- Maintains/monitors sUAS Flight and Battery Use to ensure proper maintenance, flight worthiness and safety of the sUAS. DroneLogbook, FWC's **Drone Fleet Management System**, tracks each drone's flights and can be used to log battery use.

The **sUAS Person Manipulating the Controls (Controller)** is the FWC employee or approved volunteer manipulating the controls (i.e., flying) of an sUAS. The **Controller** must have successfully completed FWC-approved sUAS use and training but does not need to hold a valid FAA Part 107 Remote Pilot Certificate. The **Controller** cannot pilot sUAS without the Pilot being physically present and ready to take control of the sUAS when deemed necessary by the Pilot.

B. Operating and Safety Requirements

The following shall govern the operating and safety aspects for use of FWC sUAS. FWC-owned sUAS shall not be loaned out to non-agency personnel for non-agency work or to circumvent the intent of this manual. All sUAS must be registered with the FAA and in proper working order (determined by the **Pilot**). All FAA and other Federal regulations pertaining to the use of sUAS by State agencies must be followed.

1. Prior to piloting an sUAS, employees or approved volunteers shall be in possession of a Part 107 Remote Pilot Certificate issued by the FAA, be covered by any existing agency

Certificate of Authorization (COA) or be under the direct supervision of a person who holds such certification/coverage.

2. Use of an **Observer** is strongly encouraged but not mandated unless the **Pilot** or person manipulating the controls is using “goggles”, meaning, flying in First Person View (cockpit view). The sUAS **Pilot** or **Controller** may serve as **Field Leader** but may not serve as their own **Observer** when an **Observer** is required.
3. The FWC sUAS **Pilot** is required to maintain sUAS Flight and Battery Use Logs in the **FWC Drone Fleet Management System**. These logs are necessary to ensure proper maintenance and thus the flight worthiness and safety of the sUAS. Moreover, they are vital to providing the FAA with needed information in case of an accident involving an FWC sUAS.
4. A Flight Plan should be filed through the **FWC Drone Fleet Management System** in advance whenever possible. Flight Plan data shall be input into the **FWC Drone Fleet Management System** by the **Pilot** or their delegate prior to launch, with sufficient time to allow for review and approval where required.
5. If no agreement between FWC and the landowner exists, the appropriate Public Authorities or Landowner should be notified that sUAS will be used over areas under their jurisdiction/control, or in the event of an emergency involving the use of a sUAS. The geographic boundaries of sUAS flights will dictate the entities that need to be notified. Express written permission of the property owner is required for sUAS use over Private Lands.
6. Employees and approved volunteers must take all appropriate steps to safeguard citizen privacy when using a sUAS. Private landowners have a legal expectation of privacy when their property cannot be seen by a person at ground level. Please refer to the FAA B4UFLY app’s UAS Privacy Best Practices document and §934.50 F.S. regarding sUAS use and citizen privacy for how to safeguard [citizen privacy](#).
 - a) **Field Leaders** will ensure that express written permission to fly and collect data using a sUAS is obtained from all private landowners before a sUAS is flown over private property. It is highly recommended that use of sUAS over public property also be approved by the property manager prior to the commencement of sUAS flight operations. These written permissions are to be entered into the **FWC Drone Fleet Management System**.
 - b) FWC employees and volunteers shall not collect data from unintended areas. **Field Leaders** and **Pilots in Command** will use appropriate technologies and procedures to ensure no sUAS intrusion into unauthorized airspace nor the collection of unauthorized data occurs. Such resources may include but may not be limited to; GIS to identify private lands along flight paths and allow for buffering of flight paths, and Geo-fencing software on sUAS to autonomously keep sUAS from straying into unauthorized airspace.

7. On the day of the fight, **sUAS Field Leaders** are responsible for reviewing the [General Guidance Checklist](#); the **Pilot** is responsible for reviewing the [Pre-flight Checklist](#).
8. Staff and approved volunteers must use caution when operating sUAS and should refrain from using them during high winds or stormy conditions or in other situations likely to increase the risk of injury/damage to people, equipment, or property.
9. Staff and approved volunteers should be familiar with and follow all guidance or best management practices concerning use of sUAS around specific wildlife species.
10. All flight logs for completed missions must be uploaded to the **FWC Drone Fleet Management System** within two weeks. Any mission-related issues should be noted in the flight record.

C. Working with Contractors and Partners

1. All contractors or partners under FWC direction shall provide documentation such as license or certification and flight plans to the Commission prior to conducting sUAS operations.
2. Flight records and data must be recorded and maintained by the contractor or partner for a minimum of 5 years and made available to the Commission upon request.
3. Contractors and partners must conform to all standards detailed in D.3 below (sUAS Hardware).

These requirements do not apply to informal or unpaid collaborations that include sUAS operations but that are not under FWC direction and that have no FWC staff involvement, with the exception of D.3.i (drones may not connect directly to FWC's network).

D. sUAS Hardware

1. All purchases of sUAS devices must use Office of Information Technology, Network Services-approved vendor products and security configurations.
2. It is the user's responsibility to obtain OIT approval via the [OIT software/hardware request form](#) for sUAS purchases prior to the purchase. If approval is not obtained, the user must refrain from the purchase.
3. The Department of Management Services (DMS) is required to develop minimum security standards, including a list of approved manufacturers, for governmental agency drone use and OIT approval must conform to these standards.
 - a) The initial [list](#) from DMS included Skydio, Parrot, Altavian, Teal, and Vantage drones. However, the list is subject to change and state agencies can use unlisted manufacturers per R. 60GG-2.075 F.A.C. provided Subsection (4), Foreign Countries of Concern; subsection (5), Standard Precautions; subsection (6), Tier Two; subsection (7), Tier Three

minimum security requirements are met. In addition to the requirements of subsections 4-7, the following provides additional guidance to meet the minimum requirements:

- i) The drone does not connect directly to FWC's network. External storage, such as a secure digital (SD) card, can serve as intermediaries to transfer data from the drone to FWC's network.
 - ii) Drones can only connect to the internet for purposes of command and control, coordination, or other communication to ground control devices or systems related to the mission of the drone; ground control devices and systems must be isolated from FWC's network. FWC-owned tablets with cell service or air card internet access may be used with FWC drones provided that the current FWC mobile device management is installed on the device and the device never connects to the FWC network or FWC Wi-Fi.
 - iii) The manufacturer is not domiciled in a Foreign Country of Concern as defined in §286.101(1)(b), F.S., or that FWC reasonably believes is owned or controlled (in whole or in part) by a Foreign Country of Concern. To determine where a manufacturer is domiciled, staff should request a list of sources for each component from the manufacturer because a manufacturer may have a business address that differs from where they primarily source and assemble components.
4. FWC users shall take reasonable precautions to protect sUAS devices in their possession from loss, theft, tampering, unauthorized access and damage. Incidents that compromise the integrity of the agency's data or information resources including lost or stolen flash drives or other external storage devices should immediately be reported by FWC employees, contractors or volunteers, in accordance with FWC [IMPP 3.8](#). FWC users shall immediately report lost or stolen sUAS devices according to [FWC's Information Security Incident Reporting Procedures](#).
5. **Pilots** shall follow [IMPP 5.3.8](#) in reporting any sUAS accident that results in harm to any person or damage to any property (other than the sUAS itself) and notify their **Liaison** and the **sUAS Safety Manager**. Additionally, per FAA, the remote pilot in command of an sUAS is "required to report an accident to the FAA within 10 days if it results in at least serious injury to any person or any loss of consciousness, or if it causes damage to any property (other than the UAS or drone) in excess of \$500 to repair or replace the property (whichever is lower)."