

Uncrewed Aircraft Systems Handbook



UxS Operations Center
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Endorsed By:



<p>CARY.CHAD.M .1245514960</p> <p>Digitally signed by CARY.CHAD.M.1245514960 Date: 2022.05.16 16:56:28 -04'00'</p>	<p>MATLOCK.GARY. C.DR.1365869339</p> <p>Digitally signed by MATLOCK.GARY.C.DR.13658693 39 Date: 2022.05.17 06:02:12 -04'00'</p>
<p>RDML Chad Cary, OMAO Deputy Director for OMAO Operations and the NOAA Corps Co-chair UxS Executive Oversight Board</p>	<p>Dr. Gary Matlock, OAR Deputy Assistant Administrator for Science Co-Chair, UxS Executive Oversight Board</p>
<p>ARMOR.JOHN.ALEX ANDER.1365819404</p> <p>Digitally signed by ARMOR.JOHN.ALEXANDER.1365 819404 Date: 2022.05.17 07:49:04 -04'00'</p>	 <p>Digitally signed by DETLOR.DAVID.JOHN.13658606 33 Date: 2022.05.19 10:41:09 -04'00'</p>
<p>John Armor, NOS Director, Office of National Marine Sanctuaries UxS Executive Oversight Board</p>	<p>David Detlor, NMFS Director, Office of Science and Technology UxS Executive Oversight Board</p>
<p>BURNETT.WILLIAM.H OWELL.1122662078</p> <p>Digitally signed by BURNETT.WILLIAM.HOWELL.11226 62078 Date: 2022.05.19 10:38:40 -05'00'</p>	<p>HORSFALL.FION A.M.1365898932</p> <p>Digitally signed by HORSFALL.FIONA.M.1365898932 Date: 2022.05.31 15:25:54 -04'00'</p>
<p>Dr. William Burnett, NWS Director, National Data Buoy Center UxS Executive Oversight Board</p>	<p>Dr. Fiona Horsfall, OAR Director, Office of Research, Transtion, and Application UxS Executive Oversight Board</p>
 <p>HALL.PHILIP.GODFREY.108 4747510 2022.05.31 17:52:03 -04'00'</p>	<p>KIHN.ERIC.ARNO LD.1365874146</p> <p>Digitally signed by KIHN.ERIC.ARNOLD.1365874146 Date: 2022.06.13 12:53:07 -06'00'</p>
<p>CAPT Philip Hall, OMAO Director, Uncrewed Systems Operation Center UxS Executive Oversight Board</p>	<p>Dr. Eric Kihn, NESDIS Division Chief, NCEI OGSSD UxS Executive Oversight Board</p>

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1. Purpose

This handbook is one of three documents promulgating governance of Uncrewed Aircraft Systems (UAS) operations throughout the National Oceanic and Atmospheric Administration (NOAA):

- NOAA Administrative Order (NAO) 216-104A: Management and Utilization of Aircraft describes the authorities and responsibilities governing all NOAA aircraft operations, including UAS.
- NOAA Uncrewed Systems (UxS) Operations Center, Unmanned Aircraft Systems Policy 220-1-5 is the governing document for NOAA UAS operations. It falls under the authorities and responsibilities delineated in NAO 216-104A. It provides detailed information on the procedures for obtaining flight authorization for NOAA UAS operations.
- The NOAA UAS Handbook is subsidiary to the NAO 216-104A and the Unmanned Aircraft Systems Policy 220-1-5. It provides information for NOAA UAS operations that fall outside the scope of the previous two documents, primarily detailing the responsibilities of the operating Line Office. NOAA UAS users should note that compliance with all three documents is required for NOAA UAS operations.

2. Authority

This handbook is established under the authority of the NOAA Uncrewed Systems Executive Oversight Board (UxS EOB), chartered under the NOAA Fleet Council. The information in the handbook is supplemental to NAO 216-104A and the Unmanned Aircraft Systems Policy 220-1-5. For the purpose of these policies, NOAA adopts the FAA's definition of UAS as an aircraft that is operated without the possibility of direct human intervention from within or on the aircraft (Public Law 112-95, Section 331(8)).

This handbook does not supersede any of the regulations in 14 CFR Chapter I (Federal Aviation Regulations).

The UxS EOB is responsible for maintaining, updating and providing access to this handbook. Suggestions, corrections and comments should be addressed to uas@noaa.gov.

2.1. Roles and Responsibilities

UxS Executive Oversight Board - The UxS Executive Oversight Board (UxS EOB) is a subsidiary body constituted under the authority of the NOAA Fleet Council. The Board provides executive oversight and accountability and assures that Agency-wide strategies and initiatives for UxS are developed collaboratively and implemented consistently. The UxS EOB provides final review and approval of the UAS Handbook.

UxS Operations Center - NAO 216-104A: Management and Utilization of Aircraft, assigns overall responsibility for the "management and utilization of all aircraft activities within NOAA" to the Office of Marine and Aviation Operations (OMAO). The UxS Operations Center is established within OMAO to provide support and coordination of uncrewed systems operations within NOAA, including oversight of Uncrewed Aircraft Systems. The Unmanned Aircraft Systems Policy 220-1-5 is developed and promulgated under the authority of the Director, UxS Operations Center. The Director, UxS Operations Center is the sole authority to grant UAS flight authorization for NOAA.

UAS Division - The UAS Division (UASD) is part of the UxS Operations Center. Division staff are experts in UAS operations and are the primary resource for NOAA personnel when developing UAS projects, training and qualification of UAS pilots, airworthiness for UAS, and obtaining UAS airspace clearances and flight authorization from the Director, UxS Operations Center.

The UAS Division is NOAA's primary FAA point of contact for NOAA UAS operations. Any coordination with the FAA for NOAA's UAS operations is initiated by the UAS Division.

UxS Research Transition Office - The UxS Research Transition Office (UxSRTO) is a NOAA wide resource for research and development (R&D) and transitions of UAS to meet NOAA's mission. It is recommended to consult with them before undertaking any solicitations involving UAS R&D. Contact at UxSRTO@NOAA.gov for more information or to reach out for support.

Line Offices - Principal Investigators (PIs) within the Line Offices (LOs) conduct research and operations that are the basis for NOAA's UAS projects. PIs and Mission Commanders (MC) work with the UAS Division to develop projects and request approval for qualification of UAS pilots, airworthiness for UAS, airspace clearance and flight authorization. Compliance with government regulations and policies regarding UAS operations is the responsibility of the PIs and their respective LOs. PIs are responsible for working with LO designated officials to certify compliance with these regulations and policies prior to seeking airspace clearances and flight authorization from the UAS Division.

3. Applicability

This handbook provides supplemental guidance for all NOAA UAS operations. NOAA UAS operations are described in detail in this section, and include operation of UAS by the UxS Operations Center, Line Offices, and NOAA contractors.

Whereas the Unmanned Aircraft Systems Policy 220-1-5 describes the requirements for obtaining flight approval for NOAA UAS operations, additional requirements imposed upon the operator and the operator's Line Office are promulgated in this handbook. Compliance with requirements in both governing documents are required for all NOAA UAS operations. Compliance with many of the requirements promulgated in this handbook are documented in a Line Office Certification of Compliance (LO Checklist, section 7) which is signed by a designated official from the operator's Line Office. The NOAA UxS Operations Center requires a signed certification before proceeding with approvals for proposed NOAA UAS operations.

The process for acquiring UAS and commercial UAS services is similarly bifurcated. Line Offices are required to certify that the proposed acquisition meets requirements for cybersecurity, environmental, privacy and other policies, while the UxS Operations Center certifies whether the proposed acquisition meets airworthiness requirements needed for flight approval. These certifications are documented in a pre-acquisition checklist (section 5) prior to beginning a procurement action.

All mission commanders, pilots, and visual observers (if required) involved with NOAA UAS operations are required to read and comply with the Unmanned Aircraft Systems Policy 220-1-5 and the NOAA UAS Handbook. These are the minimum requirements that must be met; they may be exceeded but not diminished.

3.1. NOAA Operations

NOAA UAS operations are those operations where NOAA has responsibility for safety of flight or is closely involved in the day to day UAS operations. The Unmanned Aircraft Systems Policy 220-1-5 provides a non-inclusive list of operations under this definition in Section 3.2 c, and in Section 3.2 d a non-inclusive list of operations that are not NOAA operations. Final determination of the applicability of NOAA UAS governance will be determined by the Director, NOAA UxS Operations Center in coordination with the Line Office.

3.1.1. Field UAS

NAO 216-104A prescribes that NOAA Line Offices may own and operate so-called field UAS if those UAS fall below the capital asset threshold and do not exceed UxS Operations Center criteria for complex operations. These criteria include UAS weight, operations complexity, level of system maintenance, degree of training and currency required of aircrew and other factors. The criteria are used to determine whether UAS ownership is most effectively delegated to Line Offices or, for more complex systems, held by the UxS Operations Center on behalf of NOAA. Operations of field UAS receive authority, oversight,

and guidance from the Director, NOAA UxS Operations Center. Line Office UAS operations shall be coordinated and approved through the UxS Operations Center, UAS Division. This will include the approval of operations, operational risk management, and airworthiness. The UAS Division also provides consultation and direction on UAS training, safety and standardization for Line Office owned field UAS fleets.

Field UAS in an operational status (any field UAS not under an approved test and evaluation plan) must be maintained and operated in accordance with the respective Standard Operating Procedures (SOP). The SOP is developed by the Line Office owning the field UAS according to procedures promulgated in Policy 220-1-5. SOPs are specific to an airframe type and supplement information provided in the original equipment manufacturer's manual with specific information regarding the UAS' employment in operational activities.

3.1.2. Corporate UAS

UAS that exceed the capital asset threshold (currently \$200K), or exceed UxS Operations Center criteria for complex operations are designated "corporate aircraft" by the UxS Operations Center. Complex operations criteria include UAS weight, operations complexity, level of system maintenance, degree of training and currency required of aircrew and other factors. Corporate aircraft are subject to additional oversight and reporting. In most cases, corporate UAS will be fully resourced by UAS Division staff and their services available for use by all Line Offices. Corporate UAS will be subject to an allocation process similar to that for crewed aircraft and approved by the Fleet Council. Corporate UAS will be owned and operated by the UAS Division, unless otherwise approved by the UxS Operations Center.

3.2. Commercial UAS Services

Commercial UAS services refers to NOAA's acquisitions (contracts) for commercial UAS services and can include leased and rented aircraft and operators. Commercial UAS services do not include the purchase of data where NOAA has no involvement in operational control of the UAS (see section 3.3). Steps and clearances required prior to conducting NOAA commercial UAS services operations are explained in section 5.1.

3.3. Data Product Acquisition

In some cases, an operation may not be classified as a 'NOAA UAS Operation' when the UAS is being operated under a contract for a data product and not for Commercial UAS services. Less NOAA operational oversight is required when the Federal involvement does not include close Government supervision or direction of the contractor's day-to-day operations. Sometimes referred to as a "Data Buy", a subset of operations beneficial to NOAA end users fall into this category. Data buys are not considered NOAA UAS operations subject to this Handbook. Coordination with the UAS Division is suggested for helping to make this determination and to avoid undue liability risks to the agency. UAS operations conducted under contracts for data or "data buys" are still required to meet applicable NOAA policies, such as privacy and cybersecurity.

3.4. UAS Operations of Agency Partners

NOAA works collaboratively with partner agencies, state or local governments, academic institutions, contractors, and other interests through a variety of agreements and funding vehicles, including grants to cooperative institutes and other grantees, as well as inter-agency agreements and formal memoranda of understanding that may, or may not include funding arrangements. In most cases, these will be governed as NOAA UAS operations, performed with the authority and oversight of the UASD and according to the requirements stipulated in NOAA's UAS governing documents; NAO 216-104A, UAS Policy 220-1-5 and this handbook. There may be rare circumstances where partner agency UAS operations with NOAA

involvement are not NOAA UAS operations. Such situations should be brought to the attention of the UASD early in the planning stages so that applicable authorities and associated responsibilities are understood by all parties involved. Note that this applies only to UAS operations. See section 5.1 for more details on partnering with contractors for NOAA commercial UAS services.

4. Access to Airspace and Lands

Within NOAA, the responsibility to seek approval for access to airspace for UAS operations is held by the UxS Operations Center. This is true for access to the National Airspace System (NAS) and for airspace outside of the NAS. The UxS Operations Center Unmanned Aircraft Systems Policy 220-1-5 has information on working with the Center to gain access to airspace. The access to airspace provided by the UASD is in compliance with FAA regulations within the NAS, and with international authorities providing air traffic services in their regions.

The UAS Division is NOAA's primary FAA point of contact for NOAA UAS operations. Any coordination with the FAA for NOAA's UAS operations is initiated by the UAS Division.

Depending on the situation, access to airspace and/or the land underlying the airspace may require additional permissions. These may include, but are not limited to the situations described in the following paragraphs. At a minimum, UAS operations require written permission to use the land from which the UAS takes flight and is recovered. Requirements for permissions to overfly land without touching down depend upon the specific UAS operation and landowner sensitivity. It is the responsibility of the PI to obtain all special access permits and landowner permissions wherever required for proposed UAS operations. The UAS Division can assist with these requests. Possession of all special access permits and landowner permissions required for a proposed operation is one of the certifications of compliance required of the requesting Line Office prior to seeking flight authorization from the UxS operations Center (see section 7).

4.1. Overflight of National Marine Sanctuaries

Operation of motorized aircraft below certain minimum altitudes is restricted in designated zones within four National Marine Sanctuaries on the U.S. west coast. The prohibitions are intended to minimize wildlife disturbance due to noise and other aspects of low altitude flight operations. Any proposed flight operations below the altitude restrictions in these zones should be coordinated with the affected Sanctuary. PIs should refer to the permit section of the National Marine Sanctuaries website for information on obtaining Sanctuary overflight permits. For operations in sanctuaries other than the four sanctuaries with altitude restrictions, coordination with the sanctuary is recommended prior to using UAS in the sanctuary.

4.2. Overflight of Lands Administered by the U.S. Department of the Interior

The U.S. Department of the Interior is the steward of over 20% of the nation's lands. Oversight of these lands is provided by the array of Interior bureaus and agencies, including the National Park Service, the Bureau of Land Management, and National Wildlife Refuges among many others. Permission to operate UAS from and over Department lands is provided by individual operating units of the Department. Coordination with any DOI land manager is recommended prior to using UAS from or over any Department lands. It is suggested that the PI coordinate with the UAS Division prior to contacting DOI if they are unfamiliar with DOI's requirements.

4.3. Overflight of Tribal Lands

Tribes, tribal entities and Native corporations may have heightened sensitivity to UAS operations due to the presence of artifacts and relics, cultural traditions regarding land use, and hunting and traditional subsistence activities. UAS operators proposing flights from, above or near tribal lands or that could impact any tribal interest, must conduct timely and thorough outreach efforts to inform all persons that

may be affected by the operations, to seek input in planning operations to minimize impacts and secure the tribal or landowner permissions required.

The relationship between Federally-recognized Indian Tribes and the Federal government is one of sovereign to sovereign and has been described at length by the federal judiciary and referred to in federal law promoting Tribal self-determination and self-governance. Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments" requires federal agencies to establish procedures for meaningful consultation and coordination with tribal officials in the development of federal policies that have tribal implications. NOAA implements EO 13175 through the "NOAA 13175 Policy." If a proposed flight may have tribal implications on a Federally-recognized tribe, the office proposing the action should, at the earliest time practicable, review the NOAA 13175 Policy to determine whether formal tribal consultation should be initiated. The NOAA 13175 Policy is available at: <http://www.legislative.noaa.gov/policybriefs/NOAATribalconsultationhandbook2016.pdf>. Information on federally-recognized tribes is provided by the Department of Interior and available at: https://www.bia.gov/tribalmap/DataDotGovSamples/tld_map.htm.

4.4. **Emergency, Disaster Response, and Rapid Response UAS Operations**

In certain, unique situations, it is necessary to act quickly to obtain data in support of NOAA missions. When this activity coincides with the operation of UAS, there are multiple approaches in which such "rapid response" operations may be executed. There are also a multitude of scenarios that may be involved, ranging from very simple to very complex. Some missions may require data collection in rural locations, away from busy airports and apart from areas where other stakeholders may have an interest in occupying the airspace in support of their own missions. Routine Part 107 UAS operations with minimal need for external coordination may be best suited to meet the requirement. Other missions may require data collection via UAS operations in very busy, complex airspace in conjunction with other local, state, or Federal partners vying to occupy and/or help manage activities in the same area (e.g., large-scale disaster response and issuance of a Temporary Flight Restriction). Due to the potential for such complexities, coordination with the UAS Division is required, well ahead of the potential for any NOAA emergency, disaster response, and rapid response UAS operations. Pre-planned operational scenarios for possible contingencies will ensure NOAA's responses are approved and conducted as rapidly as possible.

4.5. **Courtesy Permissions**

Depending on the operating area, UAS operators may require special access permission to operate from, or overfly certain areas. The previous paragraphs cover some common examples requiring special permits or permissions. Operators are cautioned that the examples are not all-inclusive. As a general rule, and especially in high visibility scenarios, NOAA operators should conduct outreach campaigns to inform the public of the nature and extent of proposed operations. In doing so, potential conflicts or hazards are detected with time to alter operations that may concern constituents or develop mitigations. Even if not required by law or regulation, operators that are forthcoming about planned operations and willing to listen to concerns from landowners and the public will find it easier to stage and perform their missions.

States and local governments may also have statutes, regulations, or ordinances for UAS operation. Generally, the Federal government is only bound by Federal law, but as a policy, complies with state and local laws to the maximum extent practicable. The UxS Operations Center will assist in identifying any potential state and local laws that should be considered.

4.6. Security Sensitive Airspace Restrictions

NOAA UAS are prohibited from flying over designated national security sensitive facilities. Operations are prohibited within such areas and apply to all types and purposes of NOAA UAS flight operations. Examples of these locations include but are not limited to:

- Military bases designated as Department of Defense facilities
- Military ships and assets
- National landmarks – e.g., Statue of Liberty, Hoover Dam, Mt. Rushmore, etc.
- Certain critical infrastructure, such as nuclear power plants

For proposed NOAA operations near or within these types of locations, coordination with the UAS Division is required.

5. Procurement of UAS

The UAS Division (UASD) within the Uncrewed Systems Operations Center provides oversight of UAS by approving qualified pilots, system airworthiness, and airspace for all NOAA UAS operations. To maximize the efficient use of resources, NAO 216-104A mandates that Line Offices will coordinate all acquisitions of UAS with the UASD to ensure that systems being procured meet operational, safety and regulatory requirements. The coordination is to ensure that before systems are procured, preliminary plans are developed which outline the steps and resources required to achieve full certification and UASD approval for planned operations of the systems being considered. Coordination activities will be streamlined to the extent possible by drawing on past experience while ensuring that planned procurements meet stated mission requirements on-schedule and on-budget.

For field UAS, responsibility for ensuring that acquisition coordination is diligent and complete falls upon the Line Office. Each Line Office shall designate one or more UAS subject matter experts (SME's) to provide guidance to Line Office Program Managers throughout the acquisition coordination process. The designated SME shall maintain awareness of all ongoing and proposed UAS activities across the Line Office. The SME shall be answerable to Line Office leadership on all aspects of proposed and completed UAS acquisitions, and shall communicate closely with UASD regarding the LO's needs and the reasoning behind their acquisition decisions. This will allow UASD to function as a clearinghouse for UAS acquisition information. The SME, with UASD assistance, is able to advise program managers on all aspects related to UAS acquisitions (market trends, new technologies, cybersecurity, airworthiness, etc.) by virtue of having experience in the LO's past UAS acquisitions. SME's become better with time and experience and the loss or turnover of SME's is something to be anticipated and planned by the LO.

Persons looking to acquire a UAS should develop a justification document and share this with their Line Office SME. Depending on the value and application of the acquisition, this justification could incorporate elements including a concept of operations document, analysis of alternatives, and preliminary plans for pilot and aircrew training and qualifications, standard operating procedures and regulatory compliance. The Line Office representative will have the authority to dictate the level of formality on a case-by-case basis. The specific coordination actions leading to sign off by the designated official is left to the individual LOs.

Sign Off: When the above described steps are completed, the SME shall brief the Chief, UASD and provide any additional information upon request. When satisfied that the proposed acquisition has been adequately planned, the Chief, UASD will sign off on the UAS Pre-Acquisition Approval Checklist, signifying it is well enough described and resourced to reasonably assure it will result in a successful, operational capability added to NOAA's inventory. After gaining UASD opinion on the procurement, the SME will brief the Line Office's UAS procurement authorizing official (the DAA for Operations or designee) on the proposed procurement and seek the authorizing official's sign off on the checklist. No procurement action will be initiated without written concurrence to proceed. SME's shall keep written records of the acquisition coordination process and concurrence. At the discretion of the authorizing official, future acquisition coordination processes may rely to varying degrees on existing coordination documents if the concepts of operations and analyses of alternatives are not dissimilar.

Property Records: SME's are responsible to their respective LOs to ensure that procurement and property records accurately reflect the acquisition. Acquired UAS will not be registered with the Federal Aviation Administration by the UASD until a property record is generated within the Sunflower personal property management system. Within Sunflower, the Federal Supply Code (FSC) should be recorded as 15-50. The object class for credit card purchases should be 31-25, while the object class for AGO simplified purchases should be 31-25-25-35 and AGO non-simplified purchases 31-25-25-17.

5.1. Commercial UAS Services

Commercial providers of UAS equipment and services can be a beneficial source of equipment and expertise. Especially when exploring concept feasibility at low technical readiness levels, contract equipment and providers can provide interim capabilities, allowing initial development without requiring substantial outlay of resources or long term commitments. Except for Data Buys as explained in section 3.3, contractor provided aircraft and services are NOAA operations subject to oversight and approval by UASD. Acquisition actions for commercial UAS services follow steps analogous to those for UAS acquisition, involving the PI or program manager, a LO SME and the UASD. The steps outlined below are undertaken to assure that the contracted commercial services fulfill the operational requirement and comply with NOAA procedures.

Step 1. The commercial UAS services pre-acquisition documents will be reviewed by the UASD and approved at the Line Office Executive Level. See Section 5 and the Unmanned Aircraft Systems Policy 220-1-5 for specific requirements. The UASD is responsible for conducting a pre-acquisition review to ensure that the statement of work/specifications for commercial UAS services will meet NOAA and FAA policy for pilot certification and airspace approval. The Line Office's pre-acquisition specifications and requirements shall be provided to the UASD 14 calendar days prior to the planned submission of the purchase request package to the acquisition office.

Step 2. Before a contract for commercial UAS services has been awarded, each Line Office shall ensure that the specific commercial UAS services operation meets all applicable NOAA, DOC, and Federal policies. Each Line Office will coordinate and approve their commercial UAS services Operations through the process outlined in Section 7, Line Office Certification of Compliance (LO Checklist).

Step 3. Once the LO Certification of Compliance is submitted to the UASD, the Division conducts a commercial UAS services safety and operations review to ensure that the specific operation proposed by the commercial UAS services meets NOAA and FAA policy for pilot certification, airworthiness and airspace approval. UAS operations by commercial aviation services require a NOAA Mission Commander (MC). Requirements for MC designation and mission performance are contained in the UxS Operations Center Unmanned Aircraft Systems Policy 220-1-5.

6. Other Federal Statutory, Regulatory, or Policy Compliance

Prior to seeking flight authorization from the UxS Operations Center, Line Offices require PIs to verify that UAS operations have or will be in compliance with applicable statutory, regulatory, and other requirements. Compliance is verified by a check off list that is signed by Line Office designated officials (Section 7). These include at a minimum the following.

6.1. Environmental Compliance

The National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. 4321 et seq., as implemented by the Council on Environmental Quality (CEQ) Regulations (40 CFR Parts 1500 through 1508), requires the government to assess the environmental impact of proposed actions. NOAA Administrative Order (NAO) 216-6A places responsibility for complying with NEPA with the Line Office Assistant Administrators and Staff Office Directors. NOAA has developed a Companion Manual to provide additional, specific policies pursuant to NEPA and related authorities, and provide guidance and resources to aid NOAA in

implementation of NEPA. NAO 216-6A also requires each Line and Staff Office to assign NEPA Coordinators to assist with NEPA compliance and related authorities. Contacts are available here. UAS operations that may impact endangered species and/or marine mammals may also need to comply with the Endangered Species Act (16 U.S.C. § 1531 et seq.) and/or Marine Mammal Protection Act (16 U.S.C. § 1361 et seq.). Line and Staff Office NEPA Coordinators provide assistance for complying with these and other environmental and natural resource statutes.

6.2. Privacy

NOAA enacted a UAS Privacy Policy in 2017 to facilitate compliance with laws and directives pertaining to privacy, specifically as they apply to data collections from UAS. Most of the policy relates to the handling and treatment of Personally Identifiable Information and Business Identifiable Information (PII and BII). UAS data collections require special treatment in data handling, processing and storage systems as described in the System of Records Notice for NOAA UAS. In the majority of NOAA UAS operations that do not require collection of PII and BII, compliance with privacy policies can be simplified by avoiding collection of PII or BII in the course of routine UAS operations. As an example, many of NMFS' UAS operations collect data on the occurrence, abundance and morphometrics of protected species in their habitats. Such operations use a camera as the primary sensor, and collect ancillary position and time stamp data. These operations do not require any collection of PII or BII, though routine operations could inadvertently image a bystander vessel, possibly including identifying information such as vessel registration numbers or even recognizable facial imagery. Such inadvertent data collection is not a required part of the UAS mission and should be actively avoided. Unintentional, inadvertent collection of PII and BII require immediate corrective actions. If PII or BII is inadvertently captured in any system not covered by the System of Records Notice for NOAA UAS, it is deleted within 180 days pursuant to Presidential Memorandum: Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil Liberties in Domestic Use of Unmanned Aircraft Systems (Feb. 15, 2015). Refer to the UAS Privacy Policy for more information.

6.3. Cybersecurity Policy

NOAA uses the Uncrewed Systems (UxS) Cyber Working Group to address UAS cybersecurity issues and concerns. All NOAA Line Office IT Security Officers (ITSOs) are voting members, and the group works under the authority of the NOAA UxS Executive Operations Board (EOB) with the participation of the NOAA Office of the Chief Information Officer. The UxS CWG developed Cybersecurity Principles for UAS that are largely based on (and consistent with) the CISA Cybersecurity Best Practices for Operating Commercial Unmanned Aircraft Systems (CISA, 2019). This guidance is available at the link above and will serve as a UAS cybersecurity benchmark for all NOAA Line Offices.

6.4. Data Management Plans

The NOAA Data Strategy provides a unified strategic approach for NOAA data governance in compliance with Federal statutes, policies and guidance. The Strategy further codifies: NOAA Administrative Order (NAO) 212-15: Management of Environmental Data & Information; NAO 216-112: Policy on Partnerships in the Provision of Environmental Information; and NOAA's Environmental Data Management Procedural Directives. The Data Management Planning Procedural Directive (DMPPD) directs all NOAA Programs or Systems that produce or collect environmental data to develop DM Plan(s) for the data they produce internally or commission via contracts or grants. Line Office clearance officials (section 7) are familiar with specific programmatic operations and can assist PIs in reaching compliance. Refer to the NOAA Observing Systems Council / Environmental Data Management Committee for detailed Policy and procedural information, or contact NCEI.info@noaa.gov for specific assistance.

7. Line Office Certification of Compliance (LO Checklist)

All NOAA UAS operations will comply with all applicable regulatory requirements. At a minimum, these requirements include the environmental, privacy and cybersecurity responsibilities outlined in section 6. Compliance with these requirements is the responsibility of the Line Office. Each Line Office has designated officials to review proposed UAS operations and identify steps required to achieve compliance. Line Office designated officials certify compliance by signing the LO Checklist (see the form in Appendix A). Before applying for flight authorization from the UASD, PIs must first certify compliance and obtain a signed LO Checklist.

The UASD accepts Line Office certification without additional documentation. Responsibility for proof of compliance remains with the Line Office.

8. Liability Guidance for UAS

Negligence of a Government employee or contractor in UAS operations may expose the Government to liability. Contact the Dept. of Commerce General Litigation Division to understand what liability government and contractor UAS Operations may exist under the Federal Tort Claims Act (FTCA) for domestic operations and Admiralty Law for operations conducted from deployed vessels. Seek their assistance when needed in looking for ways to decrease or limit liability where possible.

Contact the DOC Contract Law Division to address contract liability issues.

Contact the DOC Federal Assistance Law Division to address Grants or Cooperative Agreement matters.

9. Abbreviations & Acronyms

Table 1. Abbreviations and Acronyms

Abbreviation	Definition
AGL	Above Ground Level
AOC	Aircraft Operations Center
BII	Business Identifiable Information
CAS	Commercial Aviation Services
CO	Commanding Officer
COA	Certificate of Authorization
CONOPS	Concept of Operations
CPA	Closest Point of Approach
DOC	Department of Commerce
DOD	Department of Defense
FAA	Federal Aviation Administration
FAM	Flight Authorization Memo
FAR	Federal Aviation Regulations
FIR	Flight Information Region
FRR	Flight Readiness Review
GPS	Global Positioning System

ICAO	International Civil Aviation Organization
ICAP	Interagency Committee for Aviation Policy
ITAR	International Traffic in Arms Regulations
LIPO	Lithium Polymer Battery
LO	NOAA Line Office
MC	Mission Commander
MOA	Memorandum of Agreement
MOC	Marine Operations Center
MSO	Mission System Operator
NAO	NOAA Administrative Order
NAS	National Airspace System
NOTAM	Notice to Airman
NTIA	National Telecommunications and Information Administration
OEM	Original Equipment Manufacturer
OMAO	Office of Marine and Aviation Operations
OPS	Operations / Operations Officer
ORM	Operational Risk Management
PI	Principal Investigator
PII	Personally Identifiable Information
PIC	Pilot In Command
PPE	Personal Protective Equipment
SEB	Science and Engineering Branch
SITREP	Situation Report
SOP	Standard Operating Procedure
SP	Supplemental Pilot
SUA	Special Use Airspace
sUAS	Small Uncrewed Aircraft System
UAS	Uncrewed Aircraft System
UASD	UAS Division within the NOAA UxS Operations Center
USCG	United States Coast Guard
UxS EOB	NOAA Uncrewed Systems Executive Oversight Board
VTOL	Vertical Take Off and Landing
VO	Visual Observer

Appendix A: Line Office Administrative Review of UAS Operations Checklist

Before seeking UAS Division flight authorization, the Line Office shall certify that the proposed UAS operation meets Line Office requirements, as well as NOAA, DOC, and other applicable federal policies.

Reference: NOAA UAS Handbook, section 7 – Line Office Administrative Review of UAS Operations.

____ **NOAA UAS Privacy Policy**

The proposed UAS operation addresses NOAA’s UAS Privacy Policy and does not change or remove any existing obligation of law or policy regarding privacy.

____ **Federal Cyber Policy**

The proposed UAS operation addresses Federal Cyber Security and Information Technology Policies. This includes but is not limited to Sec. 205 of the Cyber Security Information Sharing Act of 2015, OMB Circular A-130, NIST SP 800-37, and NAO 212-13 NOAA Information Technology Security Policy.

____ **Environmental Compliance**

The Line Office has completed all applicable environmental compliance reviews, consultations, and permitting requirements, including, but not limited to, the National Environmental Policy Act, 42 U.S.C. §4321 *et. seq.*; NOAA Administrative Order 216-6A; Endangered Species Act, 16 U.S.C. § 1531 *et seq.*, and Marine Mammal Protection Act, 16 U.S.C. § 1361 *et seq.* If applicable, the statement of work addresses any required mitigation measures, best management practices, monitoring, terms and conditions, or other environmental compliance requirements.

Project Name: _____

UAS Platforms: _____

Project Dates: _____ **to** _____

Unmanned Systems Executive Oversight Board
(UxS EOB) Line Office Representative or designee.

The _____ has reviewed this UAS operation and approval to proceed with this operation is granted.

Appendix B: UAS Pre-Acquisition Approval Checklist

Make, model, and quantity of UAS:

The Line Office shall certify that the proposed UAS acquisition meets Line Office requirements, NOAA, DOC, and other applicable federal policies by addressing each checklist item and completing all signatures prior to contract solicitation. Completion of this checklist applies to the processing of all UAS acquisitions, regardless of dollar value or previous UAS airworthiness determinations. The applicability of each checklist item for acquisitions of UAS and/or CAS is indicated. Reference: NOAA UAS Handbook, section 5 – Procurement of UAS.

Federal Policy Checklist

_____ Federal Cyber Policy

This statement of work addresses Federal Cyber Security and Information Technology Policies.

This includes, but is not limited to Sec. 205 of the Cyber Security Information Sharing Act of 2015, OMB

Circular A-130, NIST SP 800-37, and NAO 212-13 NOAA Information Technology Security Policy.

_____ Environmental Compliance

The Line Office has completed all applicable environmental compliance reviews, consultations, and permitting requirements, including, but not limited to, the National Environmental Policy Act, 42 U.S.C. §4321 *et seq.*; NOAA Administrative Order 216-6A; Endangered Species Act, 16 U.S.C. § 1531 *et seq.*, and Marine Mammal Protection Act, 16 U.S.C. § 1361 *et seq.* If applicable, the statement of work addresses any required mitigation measures, best management practices, monitoring, terms and conditions, or other environmental compliance requirements.

Approval

_____ Uncrewed Systems Operations Center, UAS
Division Chief

The UASD has reviewed the pre-solicitation specifications provided to ensure the UAS acquired will meet NOAA airworthiness and operational requirements.

_____ Line Office Executive Level Approval

The _____ has reviewed this pre-solicitation form and supporting documents. Approval to proceed with this acquisition is granted.