Uncrewed Systems Operation Center
STRATEGIC PLAN 2024-2028

Office of Marine and Aviation Operations
National Oceanic and Atmospheric Administration

Message from the Director

Dear Friends and Colleagues in the Uncrewed Systems Community,

In Fiscal Year 2020 NOAA received funding from Congress to improve and expand uncrewed systems (UxS) operations across NOAA. Through this funding and direction, the Uncrewed Systems Operations Center (UxSOC) came to be. Since that time the UxSOC has grown in size and value added to the agency. We have expanded to include two divisions- the Uncrewed Aircraft Systems and Uncrewed Marine Systems Divisions- and nearly tripled the size of our experienced and customer-focused staff. We have defined our role within NOAA and the UxS enterprise at-large, and have established our strategic goals that you will find in this plan.

Since our inception, the UxSOC has funded over 60 projects to *advance the research, development, evaluation, and transition to operations* of UxS technologies to meet NOAA mission needs. In doing so, seven UxS technologies were *transitioned to operations* with many more *tracking towards operational capabilities* in the next few years. These projects are using UxS to address NOAA mission needs across the agency, including fisheries management, weather forecasting, natural disaster preparedness, and more.

In order to harvest *the collective power of innovation*, these projects –and all the work we do– include partnerships with academia, industry, and other sectors of government and non-government. Just this past year we stood up multiple mechanisms to *promote collaboration* with our UxS partners including two requests for proposals (with over $6.4 million and over $7.5 million of our $22.5 million UxS-focused budget going to academia and industry respectively) and three new contracts to streamline the processing and delivery of uncrewed marine system data-as-a-service. We are excited to continue to *support the development of this work and the workforce to support it; and facilitate further collaboration* within the UxS enterprise in the coming years.

Following assessments of NOAA requirements and UxS needs, we are growing NOAA's fleet through the *procurement of corporate UxS*– such as DriX uncrewed surface vehicles and Slocum underwater buoyancy gliders– and development of policies and procedures that advance NOAA capabilities– such as beyond visual line of sight uncrewed aircraft systems operations. We will continue to assess NOAA requirements and needs to *fundamentally advance NOAA missions and impacts*.

Since the establishment of the UxSOC, NOAA has dramatically accelerated its adoption of UxS to meet mission needs. We certainly haven't done this alone—virtually every advancement in this technology has been a partnership with a university, an industry partner or with our fellow NOAA scientists. In the coming years the UxSOC will continue to enable this acceleration, transitioning more technologies into routine operations–
either with commercial sector or in-house capabilities. At the same time, we'll continue to support the critical research and development work- including with our academic partners- needed to be a leader in the UxS enterprise, all the while with NOAA's science, service, and stewardship missions in mind.

Captain William Mowitt

CAPT/NOAA

Director, Uncrewed Systems Operations Center

Uncrewed Systems Operations Center 2024-2028

Strategic Plan Summary

Vision

Uncrewed systems, unlimited possibilities.

Mission

Provide innovative technologies, passionate experts, and dedicated leadership to propel NOAA missions with safe, reliable, and efficient uncrewed systems.

Strategic Goals

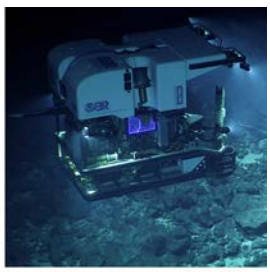
1.0 **Development, Transition, and Innovation**- Develop and transition the latest technologies and innovative solutions to substantially enhance and sustainably expand NOAA's operational capabilities.

2.0 **Operations and Support**- Provide enduring UxS capabilities, support, and expertise to fundamentally advance NOAA missions and impacts.

3.0 **UxS Leadership and Collaboration**- Be NOAA's authoritative source of UxS policies and oversight to ensure safe operations, and promote collaboration, sharing of best practices, and visibility of UxS activities.

4.0 **Model Workplace**- Develop the workforce, culture, and supportive infrastructure where people are empowered to innovate, grow professionally, and advance substantive change.






Strategic Goal 1

Develop, Transition, and Innovation

1.0

The rapid advancement of UxS technologies is unlocking exciting new possibilities for the data collection at the heart of NOAA's vital science, service, and stewardship. The key to ensuring that these technologies have the greatest possible impact on NOAA's missions begins with assessment and prioritization of user requirements, coupled with the continuous evaluation of emerging research, technologies, and partnership. From there, NOAA must prioritize the transition of mature technologies to operations for NOAA missions. In support of this, UxSOC maintains an agile "start-up" culture, fostering innovation and responsible risk-taking to accelerate learning and fully realize the potential of these new technologies.

1.0 Develop and transition the latest technologies and innovative solutions to substantially enhance and sustainably expand NOAA's operational capabilities.

Requirements

1.01 Prioritize and develop the most efficient UxS capabilities based on NOAA requirements.

1.02 Assess the potential of new research and technologies to improve and expand NOAA capabilities using the latest platforms, sensors, concept of operations, and lessons learned.

Research and Technology Partners

UxSOC leverages its government, academic, industry, and non-governmental partners to develop, assess, and test new technologies and concepts. UxSOC works to support and enable capabilities for programs across NOAA As such, UxSOC closely partners with NOAA mission holders within programs to enhance and expand their operational capabilities.

NOAA transition plans and data management planning are also key components of transitioning to operations. UxSOC coordinates closely with the Office of Research, Transition, and Application and the National Centers for Environmental Information respectively to ensure critical connections such as partners, end users, and the data pipeline are thought through to maximize the success of transitions.

Recognizing that innovation comes through collaboration, the UxSOC strives to regularly engage with the broader UxS community and develop creatives ways to foster UxS partnership.

Transitions to Operations

1.03 Prioritize UxS focus areas, allocate resources, and leverage established capabilities to accelerate transitions.

1.04 Develop and transition capabilities to measurably increase reliability, capacity, efficiency, and safety of NOAA UxS missions.

Innovation

1.05 Provide UxS platforms and resources for testing and evaluation to explore new capabilities and mission applications.

1.06 Foster a culture of innovation and boundary pushing that promotes creativity and accelerates learning.

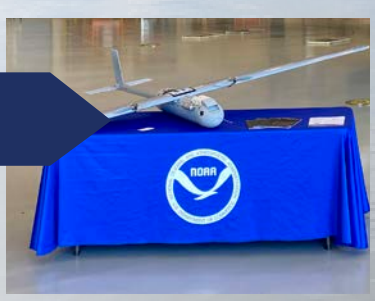
Development Priorities

Initial development priorities for UxSOC focus on operationalizing proven platforms and integrating new sensors, including but not limited to:

Beyond Visual Line of Sight for UAS

Underwater Buoyancy Glider Recovery

Severe Weather UAS



DriX Launch and Recovery

Strategic Goal 2

Operations and Support

2.0

OMAO is a force provider to NOAA's missions, operating the ships, aircraft, and now UxS that provide the essential data that drive science and decision-making. UxSOC leads, enables, and supports NOAA operations with UxS. This can occur through the procurement and management of corporate UxS platforms for all parts of NOAA, or the facilitation of operations of program-owned UxS. In both instances, UxSOC strives to offer comprehensive support and expertise across all aspects of UxS to its NOAA partners.

2.0 Provide enduring UxS capabilities, support, and expertise to fundamentally advance NOAA missions and impacts.

UxSOC Capabilities

2.01 Establish a UxSOC Corporate Fleet plan to anticipate and prepare for evolving mission requirements.

2.02 Fully operationalize and mature new UxSOC Corporate capabilities to execute NOAA missions where it makes fiscal sense.

2.03 Integrate UxS into existing NOAA platforms and operate independent UxS to accomplish NOAA missions.

2.04 Contract private sector assets and data buys to execute NOAA missions where it makes fiscal sense.

2.05 Define the roles and responsibilities of the Center and its partners to improve data acquisition, quality control, and management for the operation of UxSOC Corporate platforms.

Corporate Capabilities

UxSOC is growing its corporate capabilities, including:

Uncrewed Surface Vehicles for Surveys and Mapping

NOAA-Wide UxS Emergency Response

Air-Launched Hurricane UAS

Medium-Lift UAS

Buoyancy Glider Fleet

Platform Ownership and Operations

UxSOC corporate platforms are those assets owned, operated, maintained, and allocated by the Center.

UxS field-level assets are also owned and operated across NOAA programs. In these instances NOAA programs own and operate the UxS assets, and the UxSOC is available to provide field guidance, consultive expertise, and other support.

UxS Support and Expertise

2.06 Provide UxS expertise and customer-centric service with a cross-NOAA perspective.

2.07 Establish a platform allocation system for UxSOC owned and operated UxS platforms that optimize collective NOAA resources and priorities.

2.08 Continue to provide NOAA with access to UxS training, acquisition support, and activities review to ensure safe and efficient operation of UxS field-level assets.

2.09 Collaborate with UxS operators and NOAA IT system owners to enable safe, secure, and accessible cyber operations.

Outcomes

Some outcomes of UxSOC's corporate capabilities, support, and expertise for NOAA missions include:

- Delivery of real-time monitoring and data collection.
- Operations across vast areas.
- Safe operations in hazardous conditions.
- Access to locations people cannot go.
- Support of NOAA science including but not limited to ecosystems, marine mammals, routine weather, ocean mapping, and hurricanes.

Strategic Goal 3

Leadership and Collaboration

3.0

The rapid growth of UxS across NOAA necessitates a coordinated approach to UxS operations for the safe, efficient, and impactful use of UxS assets and sharing of expertise. UxSOC aims to be at the center of all things UxS in NOAA. UxSOC supports the development and enactment of smart policies, procedures, and protocols that will serve the entire UxS enterprise. This requires close collaboration with public, private, and academic partners to support the development of effective and responsible legislation and regulation. UxSOC aims to strengthen such collaboration and is dedicated to engaging with its partners, and customers in dialogue to continuously improve UxS operations and services. UxSOC also has a vital role in promoting the groundbreaking science and stewardship made possible by these cutting-edge technologies. Altogether, UxSOC aims to lead NOAA and the UxS community into a bright future of scientific possibility.

3.0 Be NOAA's authoritative source of UxS policies and oversight to ensure safe operations, and promote collaboration, sharing of best practices, and visibility of UxS activities, and impacts.

Policies and Authorities

3.01 Support and enable the Uncrewed Systems Executive Oversight Board (UxS EOB) to inform, coordinate, and implement UxS policies, authorities, and positions across NOAA.

3.02 Develop and enact NOAA policies, procedures, and protocols that ensure the safe operation of UxS and serve as the gold standard in the federal government.

3.03 Collaborate with public, private, and academic entities to influence more effective UxS legislation, regulations, and policies.

Collaboration and Coordination

3.04 Develop and lead UxS Communities of Practice to share new research, technologies, best practices, and strengthen relationships and collaboration on shared priorities.

3.05 Strengthen and develop strategic partnerships across public, private, and academic entities to leverage resources and solve shared challenges.

Outreach and Visibility

3.05 Promote innovate and highly impactful UxS operations to raise public awareness and support for NOAA's important science missions.

3.06 Increase engagement with NOAA partners and customers to promote the Center's capabilities and receive feedback.

Want to stay up to date on NOAA's UxS activities?

Check out omao.noaa.gov/uncrewed-systems

What is a Community of Practice?

Communities of Practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly. The UxS Communities of Practice include platform-centric knowledge, user and operator knowledge, use cases and applications, and any related lessons learned.

Strategic Goal 4

Model Workforce

4.0

UxSOC recognizes that the cornerstone of its success lies in its dedicated and talented workforce, comprising individuals who work across various domains, from sea and air to shore and office, to advance NOAA's missions and provide exceptional service experiences. In order to attract and retain the diverse and highly skilled workforce that will realize the full potential of UxS at NOAA, the UxSOC strives to be a model federal workplace. This commitment starts with providing training, professional development, and career growth opportunities that enable each employee to realize their full potential. It is cultivated in an environment that is physically and psychologically safe and inclusive; and a culture that values professionalism, innovation, and problem-solving. And lastly, UxSOC's model workplace provides the supportive infrastructure to empower every employee to work efficiently and effectively, including administrative and business functions, information sharing and collaboration, and fully functional operational facilities.

4.0 Develop the workforce, culture, and supportive infrastructure where people are empowered to innovate, grow professionally, and advance substantive change.

Workforce

4.01 Recruit the new and diverse expert workforce to achieve UxSOC strategic goals and evolving mission capabilities.

4.02 Provide and promote training, recognition, and professional development for all staff to reach their full potential and maximize their contributions.

4.03 Develop civilian and NOAA Corps workforce plans that create leadership opportunities at all levels and define career pathways.

Creative Ways to Increase Capacity

UxSOC is actively exploring ways to support the career paths of a diverse expert workforce. For example, NOAA employs professional mariners across its fleet of research ships. UxSOC is working to provide UxS operator training for these individuals that would provide them additional land-based professional opportunities. In turn, they will help support NOAA's growing UxS fleet.

Culture

4.04 Ensure a safe, inclusive, and respectful workplace for every employee.

4.05 Relentlessly pursue an operational culture of professionalism, innovation, and mission-driven problem solving to advance substantive change.

> ***"We have a rare opportunity to build culture from the ground up."***

Supportive Infrastructure

4.06 Invest in strong administrative capabilities and business processes to underpin and enable all Center functions.

4.07 Establish a repository of institutional knowledge and standard operating practices to support information sharing, continuity of operations, and individual problem solving at the Center.

4.08 Build out the Wicker Center as a fully functional facility to support UMS operations.

Infrastructure In Action

While UxSOC's workforce and infrastructure are still growing, its present workforce has already made great strides in erecting and providing a system to empower efficient and effective UxS operations.

For example, in 2023 UxSOC personnel solicited and competitively selected to fund nine projects that leverage UMS services from the private sector. The first contract was awarded to industry for these projects only 57 days after the funds were alloted by Congress.

To support further UMS services from industry, UxSOC also developed and awarded three Indefinite Delivery Indefinite Quantity firm fixed contract vehicles to small business vendors of UMS services.

Key Terms

UxSOC- Uncrewed Systems Operations Center
UxS- Uncrewed Systems
UAS- Uncrewed Aircraft Systems
UMS- Uncrewed Marine Systems

At every step UxSOC embodies a customer-centric, cross-NOAA perspective in all operations and services, ensuring a holistic approach to meet the diverse needs of NOAA's mission objectives.