The NOAA Unmanned Systems Strategy was developed by a NOAA team of subject matter experts from a diverse mix of programs and offices. We also thank recommendations received during the public comment period and from the NOAA Observing Systems Council, OMAO Standing Review Board, the NOAA Exploration Advisory Board and the NOAA Science Advisory Board.
Outline

• Overview of the final Strategy
• Next Step – Implementation Plan
• Other Updates (CENOTE, ANTX)
• Questions/Discussion
NOAA’s Unmanned Systems Strategy
Maximizing Value for Science-based Mission Support

APPROVED:

Neil A. Jacobs, Ph.D.
Assistant Secretary of Commerce for Environmental Observation and Prediction
Performing the Duties of Under Secretary of Commerce for Oceans and Atmosphere

Tim Gallaudet, Ph.D., Rear Admiral, U.S. Navy (Ret.)
Assistant Secretary of Commerce for Oceans and Atmosphere / Deputy NOAA Administrator

STRATEGY SPONSOR

Stephan Volz, Ph.D.
Assistant Administrator
National Environmental Satellite, Data, and Information Service

Louis W. Uccellini, Ph.D.
Assistant Administrator
National Weather Service

Nicolle Lefebvre
Acting Assistant Administrator
National Ocean Service

Chris Oliver
Assistant Administrator
For Fisheries

Craig McManus
Assistant Administrator
Oceanic and Atmospheric Research

Rear Admiral Michael J. Stilp
Director
Office of Marine and Aviation Operations and NOAA Corps

Strategies and Fact Sheet
Definition

Unmanned systems are vehicles—aerial, terrestrial, or marine—and associated elements, such as sensors and communications software, that can execute data-collection missions without a human presence aboard.

They are typically controllable or programmable, self-powered, untethered, and operate on a continuum from attended to fully autonomous.

This strategy also includes Remotely Operated Vehicles which are typically deployed from ships and receive power and operator instructions from a tether.
Benefits

The recent rapid expansion in availability of UxS, fueled in part by NOAA scientists and discoveries, has brought a corresponding increase in their innovative use as a force multiplier for many NOAA programs - augmenting data collection often at lower cost, increased safety, and reduced risk, especially in remote or extreme environments.

Examples include hydrographic and habitat mapping, ocean exploration, marine mammal and fishery stock assessments, emergency response, and at-sea observations that improve forecasting of extreme events, such as harmful algal blooms and hypoxia.
VISION
NOAA is the national and global leader in UxS operations that support science, public safety, and security.

PURPOSE
To dramatically expand the collection and utilization of critical, high accuracy, and time-sensitive data by increasing the application and use of unmanned aircraft and marine systems (together, “unmanned systems” or “UxS”) in every NOAA mission area to improve the quality and timeliness of NOAA science, products, and services.
NOAA Unmanned Systems Strategy Goals

Goal 1: Coordinate and Support UxS Operations at an Enterprise Level.

Goal 2: Expand UxS Applications Across NOAA’s Mission Portfolio.

Goal 3: Accelerate Transition of UxS Research to Applications.

Goal 4: Strengthen and Expand UxS Partnerships.

Goal 5: Promote Workforce Proficiency in UxS Use and Operations.
Goal 1: Support UxS Operations at an Enterprise Level

Objective 1.1.
Establish an Effective and Adaptive Organizational Structure.

Objective 1.2.
Identify and Deliver Priority Core Services Including Cybersecurity, Training, and Acquisition.

Objective 1.3.
Implement an Innovative, Robust, and Encompassing UxS Data Enterprise.
Goal 2: **Expand UxS Applications Across NOAA’s Mission Portfolio.**

**Objective 2.1.**
Establish A Requirements-Based Process to Prioritize UxS Operational Applications and Use.

**Objective 2.2.**
Establish a Thriving UxS Community of Practice at NOAA.

**Objective 2.3.**
Objective 2.3. Institutionalize Operational Applications Through Formal Concepts of Operations.
Goal 3: Accelerate Transition of UxS Research to Applications.*

**Objective 3.1.**
Identify and Prioritize Candidate UxS Platforms for NOAA Use.

**Objective 3.2.**
Develop Transition Plans With Operational Partners.

**Objective 3.3.**
Conduct Systematic Testing and Evaluation to Ensure High Performance.

* The UxS Strategy is inclusive of “R2X” considerations, i.e., Research to Operations, to Applications, and to Commercialization, as well as the feedback to Research. As such, the UxS Strategy is meant to consider the full R2X2R feedback of activities.
Goal 4: **Strengthen and Expand UxS Partnerships.**

**Objective 4.1.**
Increasingly Leverage Interagency Integration.

**Objective 4.2.**
Reinforce Cooperation With Academia.

**Objective 4.3.**
Dramatically Grow Partnerships With the Private Sector.
Goal 5: **Promote Workforce Proficiency in UxS Use and Operations.**

*Objective 5.1.*
Expand Recruiting Efforts to Showcase NOAA UxS Activities.

*Objective 5.2.*
Establish Formal Training and Certification.

*Objective 5.3.*
Include NOAA UxS Assignments as a Retention Tool.
Unmanned Systems Strategy Team

Office of Marine and Aviation Operations
CAPT Joe Baczkowski, ACIO
CDR Kurt Dreflak, PPMD
RDML Nancy Hann, Dep Dir Ops & NOAA Corps
CDR Doug MacIntyre, Ops
John McDonough, PPMD
CDR Jon Neuhaus, AOC/UAS Sctn

National Ocean Service
John Armor, Sanctuaries
Krisa Arzayus, IOOS
Mike Aslaksen, NGS
Tim Battista, NCCOS
CAPT Rick Brennan, Coast Survey
Becca Derex, IOOS
Rob Downs, Coast Survey
Carl Gouldman, IOOS
LCDR Ben LaCour, IOOS
LCDR Damian Manda, Coast Survey
Neeraj Saraf, Coast Survey
Giovanni Sella, NGS

Office of Oceanic and Atmospheric Research
Chris Beaverson, OER
James Brown, Inf. Tech.
Eugene Burger, PMEL
CAPT Phil Hall, UASPO
Phillip Hoffman, PPE
Alan Leonardi, OER
Gary Matlock, Dep AA for Science
Chris Meinig, PMEL

National Weather Service
Jim O’Sullivan, Office of Obs
Helmut Portmann, NDBC

NOAA Fisheries
Catherine Amores, CIO Office,
David Detlor, Science & Tech
Michael Gallagher, Science & Tech
Bill Michaels, Science & Tech

National Environmental Satellite, Data, and Information Service
David Helms, TPIO
Eric Kihn, NCEI
Rost Parsons, NCEI

NOAA Office of the General Counsel
Roxie Allison-Holman
Andrew Hilderbrandt
Peter Oppenheimer
Martha McCoy
Derek Hanson
Frank Sprtel

NOAA Legislative Affairs
Bryan Cole

NOAA Office of the CIO
James Jones
NEXT STEPS AND IMPLEMENTATION PLAN

process/timeline

*February* - Plan Process Initiated: with initial Planning/Process/Assignments Meetings (divide into Goal/Objective Teams)

*Late April* - NOAA UxS Imp. Plan Workshop (1.5-2 days, in person, DC area)

*Mid-Late May* - Draft Implementation Plan, v1.0

*Late July* - Community Workshop on Draft Plan (1.5-2 days, DC area with Stakeholders)

*September* - v2.0 of Implementation Plan for NOAA review

*October* - Final UxS 5 Year Implementation Plan (roll-out at OCEANS 2020, Biloxi, MS)
NEXT STEPS AND IMPLEMENTATION PLAN
writing team

1. Charles Alexander, OMAO
2. Robyn Angliss, NOAA Fisheries/AKFSC
3. Dylan Blakeslee, OMAO/PAD
4. John Crofts, NOAA Fisheries/SWFSC
5. Rob Downs, NOS/OCS
6. Michael Gallagher, NOAA Fisheries/S&T
7. CAPT Philip Hall, OAR/UASPO
8. Gustavo Goni, OAR/AOML
9. CDR Paul Hemmick, OMAO/AOC-UAS
10. Philip Hoffman, OAR/OER
11. Todd Jacobs, NOS/Sanctuaries
12. Eric Kihn, NESDIS/NCEI
13. LCDR Benjamin M. LaCour, NOS/IOOS
14. Martha McCoy, NOAA GC
15. John McDonough, OMAO/PPMD
16. Chris Meinig, OAR/PMEL
17. Sharon Mesick, NESDIS/NCEI
18. Bill Michaels, NOAA Fisheries/S&T
19. Mark Noto, OMAO/MACC
20. Peter Oppenheimer, NOAA GC
21. Dawn Petraitis, NWS/NDBC
22. Mark Rogers, OMAO/AOC-UAS
23. Mitchell Tartt, NOS/Sanctuaries
A FEW MORE UPDATES

1. USN/NOAA CENOTE Collaboration
2. USN/NOAA ANTX 2020 Partnership
3. NOAA Press Release (March 31st)
   
   **New NOAA program to support and expand agency’s use of unmanned systems**
   
   NOAA is establishing a new Unmanned Systems Operations Program to support the rapidly expanding use of these systems across the agency. The new program will promote the safe, efficient and economical operation of unmanned systems (UxS) NOAA uses to collect high-quality environmental data for the agency’s science, products and services.

4. Pivot per COVID-19 Stand Down

*Update to the Ocean Exploration Advisory Board - April 9, 2020 - via Videoconference*
Thank You!