



# Drones in the Coastal Zone

A workshop to advance unoccupied aircraft systems in coastal ecosystem and fisheries management in the US Southeast and Caribbean

## Drones in the Coastal Zone Virtual Workshop Agenda

### Webinar Schedule

All sessions are hosted from 10 AM – 12 PM ET and are subject to change.

- Wednesday, October 14: Introduction to Using Drones in the Coastal Zone
- Friday, October 16: Environmental Quality and Habitat Condition
- Tuesday, October 20: Incorporating Training in Your Drone Program and Coastal Hazard and Damage Assessment
- Thursday, October 22: Regulatory, Legal and Ethical Considerations for Drone Operations
- Tuesday, October 27: Data Management and Communications and Mission Planning Introduction
- Thursday, October 29: Using Drones to Conduct Species / Wildlife Management

Workshop Website: <https://secoora.org/drones-in-the-coastal-zone-workshop/>

Thank you workshop sponsors!



## Introduction to Using Drones in the Coastal Zone

Wednesday October 14, 2020

Session Materials

- [Drones in Marine Science and Conservation Intro](#) (video)
- [Basic Drone Anatomy](#) (video)
- [Unoccupied Aircraft Systems in Marine Science and Conservation](#) (paper)

Time	Agenda Item
9:50 AM - 10:00 AM	<b>Join Adobe Connect &amp; Complete Icebreakers</b>
10:00 - 10:15 AM	<b>Welcome</b> <ul style="list-style-type: none"> <li>• Chris Taylor, NOAA National Centers for Coastal Ocean Science</li> <li>• RDML Tim Gallaudet, Ph.D., USN Ret., Assistant Secretary of Commerce for Oceans and Atmosphere and Deputy NOAA Administrator</li> </ul>
10:10 - 10:25 AM	<b>Overview of Technology, Agenda, and Virtual Session Series</b> <ul style="list-style-type: none"> <li>• Whitney Jenkins, NC Coastal Reserve &amp; National Estuarine Research Reserve (NCNERR)</li> <li>• Stephanie Robinson, NOAA Office for Coastal Management</li> </ul>
10:25- 10:50 AM	<b>Introducing 5 qualities that Drones Provide: Affordability, Immediacy, Safety, Quality, and Efficiency</b> <ul style="list-style-type: none"> <li>• David Johnston, Duke University</li> </ul>
10:50 - 11:00 AM	<b>Q&amp;A: Introducing 5 qualities that Drones Provide: Affordability, Immediacy, Safety, Quality, and Efficiency</b> <ul style="list-style-type: none"> <li>• Moderator: Whitney Jenkins, NCNERR</li> </ul>
11:00 - 11:05 AM	<b>Virtual Coffee Break</b>
11:05 - 11:20 AM	<b>Lightning Talks</b> <ul style="list-style-type: none"> <li>• Regional Drone Demonstration Marine Corps Installations East (REDDIE) - Troy Walton, Attollo LLC</li> <li>• Mapping Spartina Biomass at Georgia Coastal Ecosystems LTER with Altum &amp; Matrice 210 - John Schalles, Creighton University</li> <li>• Vegetation Cover Regeneration of a Coastal Urban Wetland After Hurricane Impacts in Northeastern Puerto Rico - Elix Hernandez, University of Puerto Rico</li> </ul>
11:20 - 11:30 AM	<b>Q&amp;A: Lightning Talks</b> Moderator: Whitney Jenkins, NCNERR
11:30 - 11:55 AM	<b>Unoccupied Aircraft Systems Technology Show and Tell</b> <i>Live demo of research grade fixed wing and multirotor drones</i> <ul style="list-style-type: none"> <li>• Duke University Marine Robotics and Remote Sensing Lab</li> </ul>
11:55 - 12:00 PM	<b>Close Meeting and Complete Evaluation Polls</b> <ul style="list-style-type: none"> <li>• Whitney Jenkins, NCNERR</li> </ul>

## Environmental Quality and Habitat Condition Topics

Friday October 16, 2020

Time	Agenda Item
9:50 AM - 10:00 AM	<b>Join Adobe Connect &amp; Complete Icebreakers</b>
10:00 - 10:10 AM	<b>Welcome, Overview of Technology, and Agenda</b> <ul style="list-style-type: none"> <li>Kaitlyn Dietz, Guana Tolomato Matanzas National Estuarine Research Reserve (GTM NERR)</li> <li>Stephanie Robinson, NOAA Office for Coastal Management</li> </ul>
10:10 - 10:25 AM	<b>Lightning Talks</b> <ul style="list-style-type: none"> <li>Nearshore quadcopter research: Surface ocean currents and High Frequency radar calibration- Douglas Cahl, University of South Carolina</li> <li>Tracking Coastal Change with Quadcopters to Support Beneficial Use of Dredge Material - Clark Alexander, UGA-Skidaway Institute of Oceanography</li> </ul>
10:25 - 10:35 AM	<b>Q&amp;A Session: Lightning Talks</b> <ul style="list-style-type: none"> <li>Moderator: Kaitlyn Dietz, GTM NERR</li> </ul>
10:35 - 10:40 AM	<b>Virtual Coffee Break</b>
10:40 - 11:25 AM	<b>Facilitated Breakout Session</b> Attendees will be placed in small groups for a facilitated discussion on how drones are being used to assess environmental quality and habitat conditions.
11:25 - 11:55 AM	<b>Unoccupied Aircraft Systems Technology Show and Tell</b> <i>Live demo of structure for motion and 3D reconstruction of coastal environments</i> <ul style="list-style-type: none"> <li>Duke University Marine Robotics and Remote Sensing Lab</li> </ul>
11:55 - 12:00 PM	<b>Close Meeting and Complete Evaluation Polls</b> Kaitlyn Dietz, GTM NERR

## Incorporating Training in Your Drone Program + Coastal Hazard and Damage Assessment

Tuesday October 20, 2020

Time	Agenda Item
9:50 - 10:00 AM	<b>Join Adobe Connect &amp; Complete Icebreakers</b>
10:00 - 10:10 AM	<b>Welcome, Overview of Technology, and Agenda</b> <ul style="list-style-type: none"> <li>Debra Hernandez, Southeast Coastal Ocean Observing Regional Association (SECOORA)</li> <li>Stephanie Robinson, NOAA Office for Coastal Management</li> </ul>

<b>10:10 - 10:50 AM</b>	<b>Panel: Incorporating Training in Your Drone Program</b> <ul style="list-style-type: none"> <li>• NOAA's Training Requirements - Lieutenant Nicole Chappelle, NOAA's Office of Marine and Aviation Operations</li> <li>• Examples of Regulatory and Technical Training Curriculum - Troy Walton, Attollo LLC</li> <li>• Environmental and Ecological Drone Systems Training - Duke University Marine Robotics and Remote Sensing Lab</li> <li>• American Society for Photogrammetry and Remote Sensing Certification Programs - John McCombs, NOAA Office for Coastal Management</li> </ul>
<b>10:50 - 11:00 AM</b>	<b>Panel Q&amp;A</b> <ul style="list-style-type: none"> <li>• Moderator: Debra Hernandez, SECOORA</li> </ul>
<b>11:00 - 11:05 AM</b>	<b>Virtual Coffee Break</b>
<b>11:05 - 11:15 AM</b>	<b>Marine Debris &amp; UAS - Goals, Efforts, Opportunities</b> <ul style="list-style-type: none"> <li>• Peter Murphy, NOAA Marine Debris-Alaska, Tim Battista, NOAA-NCCOS, Chris Parrish, Oregon State University, and Amy Uhrin, NOAA-Marine Debris</li> </ul>
<b>11:15 - 11:55 AM</b>	<b>Facilitated Breakout Session</b> Attendees will be placed in small groups for a facilitated discussion on how drones are being used to assess coastal hazards and conduct damage assessments.
<b>11:55 - 12:00 PM</b>	<b>Close Meeting and Complete Evaluation Polls</b> <ul style="list-style-type: none"> <li>• Debra Hernandez, SECOORA</li> </ul>

## Regulatory, Legal, and Ethical Considerations for Drone Operations

Thursday October 22, 2020

Session Material

- [Applying Unoccupied Aircraft Systems to Study Human Behavior in Marine Science and Conservation Programs](#) (paper)

Time	Agenda Item
<b>9:50 – 10:00 AM</b>	<b>Join Adobe Connect &amp; Complete Icebreakers</b>
<b>10:00 - 10:10 AM</b>	<b>Welcome, Overview of Technology, and Agenda</b> <ul style="list-style-type: none"> <li>• Whitney Jenkins, NC Coastal Reserve &amp; National Estuarine Research Reserve (NCNERR)</li> <li>• Stephanie Robinson, NOAA Office for Coastal Management</li> </ul>
<b>10:10 - 11:30 AM</b>	<b>Panel: Regulatory, Legal, and Ethical Considerations for Drone Operations</b> <ul style="list-style-type: none"> <li>• Best Practices for Droning - Rett Newton, Duke University</li> <li>• Federal Laws, Licensing, and More - Lieutenant Nicole Chappelle, NOAA Office of Marine and Aviation Operations</li> <li>• Unoccupied Aircraft Systems Policy Differences Across the Region <ul style="list-style-type: none"> <li>○ North Carolina – Mike Griffin, North Carolina Department of Information Technology</li> <li>○ South Carolina – Gary Sundin, South Carolina Department of Natural Resources</li> <li>○ Georgia – John Schalles, Creighton University</li> <li>○ Florida – Allix North, GTM NERR</li> <li>○ Puerto Rico – William Hernández, University of Puerto Rico</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• Privacy and Legal Issues - Michelle Nowlin, Duke University Law</li> </ul>
<b>11:30 - 11:35 AM</b>	<b>Virtual Coffee Break</b>
<b>11:35 - 11:55 AM</b>	<b>Panel Q&amp;A</b> <ul style="list-style-type: none"> <li>• Moderator: Whitney Jenkins, NCNERR</li> </ul>
<b>11:55 - 12:00 PM</b>	<b>Close Meeting and Complete Evaluation Polls</b> <ul style="list-style-type: none"> <li>• Whitney Jenkins, NCNERR</li> </ul>

## Data Management: From Mission Planning to Communicating Results

Tuesday October 27, 2020

Time	Agenda Item
<b>9:50 - 10:00 AM</b>	<b>Join Adobe Connect and Complete Icebreakers</b>
<b>10:00 - 10:10 AM</b>	<b>Welcome, Overview of Technology, and Agenda</b> <ul style="list-style-type: none"> <li>• Debra Hernandez, Southeast Coastal Ocean Observing Regional Association (SECOORA)</li> <li>• Stephanie Robinson, NOAA Office for Coastal Management</li> </ul>
<b>10:10 - 10:55 AM</b>	<b>Panel: Overview of Data Analysis, and Data Management and Stewardship: There's Going to Be a Ton of It, Best to Have a Plan!</b> <ul style="list-style-type: none"> <li>• Metadata Checklist - Julian Dale, Duke University</li> <li>• Submitting Data for Archiving - Sharon Mesick, NOAA</li> <li>• Internal South Carolina Interagency Specific UAV Database - Evan Cook, South Carolina Department of Natural Resources</li> <li>• Assembling Digital Image Data in One Location for Easy Access - Kyle Wilcox, Axiom Data Science</li> </ul>
<b>10:55 - 11:10 AM</b>	<b>Panel Q&amp;A</b> <ul style="list-style-type: none"> <li>• Moderator: Debra Hernandez, SECOORA</li> </ul>
<b>11:10 - 11:15 AM</b>	<b>Virtual Coffee Break</b>
<b>11:15 - 11:55 AM</b>	<b>Live Demo: Mission Planning</b> <ul style="list-style-type: none"> <li>• Duke University Marine Robotics and Remote Sensing Lab</li> </ul>
<b>11:55 - 12:00 PM</b>	<b>Close Meeting and Complete Evaluation Polls</b> <ul style="list-style-type: none"> <li>• Debra Hernandez, SECOORA</li> </ul>

## Using Drones to Conduct Species and Wildlife Management

Thursday October 29, 2020

Session Materials

- [MorphoMetriX Photogrammetry Walkthrough](#) (video)
- [MorphoMetriX: a photogrammetric measurement GUI for morphometric analysis of megafauna](#) (paper)
- [CollatriX: A GUI to collate MorphoMetriX outputs](#) (paper)
- [A standardized protocol for reporting methods when using drones for wildlife research](#) (paper)
- [Operational Protocols for the Use of Drones in Marine Animal Research](#) (paper)

Time	Agenda Item
9:50 - 10:00 AM	<b>Join Adobe Connect &amp; Complete Icebreakers</b>
10:00 - 10:10 AM	<b>Welcome, Overview of Technology, and Agenda</b> <ul style="list-style-type: none"> <li>• Kaitlyn Dietz, Guana Tolomato Matanzas National Estuarine Research Reserve (GTM NERR)</li> <li>• Stephanie Robinson, NOAA Office for Coastal Management</li> </ul>
10:10 - 10:45 AM	<b>Lightning Talks</b> <ul style="list-style-type: none"> <li>• Assessing the Manatee Populations at Jobos Bay NERR - Milton Munoz</li> <li>• Use of Drones for 3-D Photogrammetry in Pinnipeds - Michelle Shero, Woods Hole Oceanographic Institution</li> <li>• Deep Learning and Drones to Automate Seabird Population Counts - Maddie Hayes, Duke University</li> <li>• Wild horses respond to drone surveys: towards overflights that minimize disturbance - Paula Gillikin, NC Coastal Reserve &amp; National Estuarine Research Reserve, and Annie Harshbarger, Duke University</li> </ul>
10:45 - 11:00 AM	<b>Lightning Talk Q&amp;A</b> <ul style="list-style-type: none"> <li>• Moderator: Kaitlyn Dietz, GTM NERR</li> </ul>
11:00 - 11:05 AM	<b>Virtual Coffee Break</b>
11:05 - 11:55 AM	<b>Facilitated Breakout Session</b> Attendees will be placed in small groups for a facilitated discussion on how drones are being used to conduct species and wildlife management.
11:55 - 12:00 PM	<b>Close Workshop and Complete Evaluation Polls</b> <ul style="list-style-type: none"> <li>• Kaitlyn Dietz, GTM NERR</li> </ul>