

Community of Practice Report (Task 1) Compilation for final Drone the NERRs Project Report

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The Drone the NERRs grant proposal included “Building a Community of Practice” (CoP) as a Project Task, which identified the following three sub-tasks steps:

Step 1: Defining our CoP and setting up a workspace.

Step 2: Compile resources for CoP and initiate a feedback loop.

Step 3: Establish confidence and familiarity with UAS-based monitoring.

This section of the report describes the project activities as relating to Task 1.

Step 1: Defining our CoP and setting up a workspace.

At the project kickoff meeting, team members introduced themselves and discussed Community of Practice goals, workspace, and vision for this project.

The project team’s first meetings involved discussion to define our CoP and define our goals. All team members were given the opportunity to provide input regarding how they felt the CoP should be defined and our goals. The need to distinguish between a CoP for this project and a CoP that may serve the NERRs as a whole quickly became apparent. Because the timeline of this project was only 12 months initially, a short time to create all project deliverables, the team determined that a larger CoP would be outside of the scope of the project. However ideas and products developed by the team could feed into a larger NERRs CoP.

- i. CoP members: For this project, team members which included the initial project PIs and additional staff at each NERR helping complete the project. The project team quickly realized that creating a larger CoP in one year would be difficult and fall outside the scope of this project. However the project team could use experience to recommend what a larger NERRs CoP could look like over time. For a NERRs UAS CoP, the project team would like to see anyone at any NERR interested in using UAS technology join the community.
- ii. CoP goals:
 - a. Immediate project goals required the team to focus on creating a community of practice of individuals that could help support each other complete the project tasks. With many team members completely new or relatively inexperienced using UAS technology, supporting each other while working through Evaluating Drone the SWMP SOP was critical.
 - b. The NERRs serve as a unique environment with our sectors of Research, Stewardship, Education, and Coastal Training and Engagement, and the team would like to see a NERRs CoP or Working group balance needs between specific UAS uses such as habitat mapping and classifications with broader desire to bring drones to Education, Coastal Training, and more. The project team envisioned the NERRs CoP as providing this type of information exchange and support on a larger level.

To set up a workspace, the Project PI set up a google drive folder which was shared with all team members and includes all project information including the information specific to this project such as the proposal, team contact list, meeting agendas and notes, and more general UAS resources such as publications that may be of interest, and more. This action meets needs for both setting up the workspace and compiling resources, discussed in more depth below. After polling the group about availability, the Collaborative Lead scheduled monthly recurring meetings (held via MS Teams). The team has held 13 more formal monthly meetings, including a project kickoff meeting, at the time of writing this report. All meeting agendas and notes were posted promptly in the google drive. Project communications were held via email, phone, or video meeting applications. Contact information was kept on the google drive and kept updated. As the project team was large not all members were able to attend monthly meetings. The PI and Collaborative lead made efforts to reach out via phone or email to team members whose Reserves were not able to attend monthly meetings to facilitate communication, updates, and address any needs.

Step 2: Compile resources for CoP and initiate a feedback loop.

The Project CoP compiled resources throughout the duration of the project by sharing during team meetings, sharing via individual, one-on-one or small group meetings, sharing written documentation via email and saving items in the google drive with notifications items had been saved including discussion during monthly meetings and via email notifications. The project team discussed how to best capture advice and workflows that may occur during one-on-one phone calls or video chats, especially those between a team member(s) and TAT member solving an issue that others may benefit from hearing.

The team identified the following list of needs to build and maintain a CoP:

- i. A leader: Having someone to drive the CoP, which takes time and energy. Having this be part of someone's job is the best scenario, as team members were part of other or past CoP that fizzled when there was no one to take on this role.
- ii. Funding to host a workspace such as a website or drive, pay part of the organizer's salary, and assist with other resources to support the CoP.
- iii. Workspace needs:
 - Message board/help section.
 - Resource repository.
 - SOPs.
 - Methodologies.
 - Examples or publications of examples, literature.
 - Regulations – Vary by state, country, managing entities, must be nimble as these evolve.
 - Imagery? – This could involve needing large files which could affect server needs.
 - Member area.
 - Blog/webinar to support regular new content and share experiences.
 - Someone to manage and update this workspace.

The team discussed workspace options that could support these needs, but ultimately settled on the google drive because of project limitations. The following options discussed are listed in summary to inform a NERRs CoP or Workgroup in the future:

- i. Discord:
 - a. Pros: Free, used by other UAS CoP (SECOORA Drones in the Coastal Zone). Can host message boards/discussion threads.
 - b. Cons: Some government computers restrict access, limitations for how long things may be saved, several members wary of an unfamiliar platform.
- ii. Google drives:
 - a. Pro: Many people are familiar so this is less intimidating.
 - b. Cons: Legacy – who owns the folder (what about staff turnover), some forms of google drive are no longer free so there is cost associated. No way to host a discussion thread.
- iii. Independent website:
 - a. Pros: Could build to include all workspace needs.
 - b. Cons: Costs money and needs upkeep and maintenance.

Within the constraints of this project, the team compiled resources within the google drive workspace described under Step 1 above. Capturing feedback initially began with more informal reference to those resources. The project team had several discussions about the best way to capture 1:1 feedback such as that occurring between, for example, an individual team member and a member of the TAT troubleshooting a problem together. The original PI created a form and asked team members to complete it to capture that feedback loop when help was sought, but this was not utilized by the team.

Using google surveys was utilized to collect and compile feedback with more success. Examples include a Drone Usage in the NERRs Needs Assessment that was sent to the entire NERRsall listserve. The purpose of this survey was to collect information to inform the needs of a NERRs UAS Workgroup. The team is also using a survey to collect feedback from the project team about using the Drone the SWMP SOP. This will provide the feedback for the original Drone the SWMP team regarding areas of strength or identifying weaknesses in the SOP (Project Task 2: Assessment of “NERRs Drone Marsh Monitoring SOP”).

Step 3: Establish confidence and familiarity with UAS-based monitoring.

The project team as a whole made great strides in gaining knowledge to fly drones, plan missions, post-process imagery, and analyze imagery during the course of meeting the objectives of Project Task 2: Assessment of “NERRs Drone Marsh Monitoring SOP”. Project Reserves obtained new UAS, sensors, and other hardware and software to further UAS projects. Six new UAS Part 107 pilots were added to the NERRs system as part of this project, four of which attended a Part 107 prep course offered in-house and gratis by Sue Bickford (formerly Wells NERR) in winter/spring 2024. Four NERRs staff participating in the project also took the Duke Nicholas School of the Environment UAS Training Course led by Justin Ridge in spring 2024, with two additional project participants taking this course in spring 2023. It is however noted that one of these staff members who acquired a Part 107 license, took the prep course with Sue Bickford, and participated in the Duke course has since left the NERRs system. Knowledge transfer occurred as the Technical Advisory Team answered questions from project team members directly as they arose, as well as general discussion during monthly team calls.

Some less formal regional alliances also developed through the course of the project and additional knowledge transfer occurred through these partnerships. The Great Bay and Wells Reserves ended up working together for this project rather than conducting single analyses, and formed an informal New England UAS CoP with additional regional partners. Apalachicola and Rookery Bay NERRs worked with Allix North, member of the TAT and former Stewardship Coordinator for the GTM NERR. In her current role as UAS Program Coordinator for Florida Department of Environmental Protection, the state partner for all Florida NERRs, Allix was able to travel to both Apalachicola and Rookery to assist with project flights and conduct additional UAS and imagery processing training with both NERRs' staff. Developing and strengthening these networks will be helpful to maintaining proficiency and strengthening UAS flight, processing, and analysis skills and help CoP members adapt to future technology changes, software updates, regulations changes, and more.

Community of Practice Task Outcomes:

- i. The NERRs UAS Workgroup has been reinvigorated, led by Justin Ridge, Technical Advisory Team member of this project. The Workgroup met for the first time February 25, 2025. All members of the NERRs system are invited to join the workgroup. There was a large overlap between members of this project team and the attendees of this meeting.
- ii. The Project Team created and circulated a Needs Assessment survey to the NERRs community in January 2025 to gauge NERRs-wide drone usage, who is using drones, limitations to utilizing UAS, and interest in a CoP. This information will be used to inform the newly reinvigorated NERRs UAS Workgroup. The Drone Usage Summary from the NERRs Needs Assessment will be submitted with this project's final report to the NERRs Science Collaborative.
- iii. A list of suggested CoP and Workspace needs, above.
- iv. The project team Community of Practice includes a group of people who have become more proficient at flying drones, planning missions, post-processing imagery, analyzing imagery, and more over the past 18 months. This group has joined the NERRs UAS Workgroup and our hope is that the workgroup will become the larger NERRs Community of Practice we envisioned and grow to meet the needs discussed over the course of the project.