Attachment 3
PPBEP COMMUNITY GRANT FINAL REPORT FORM

Agreement No.:	FY2022-05		
Grantee Name:	IHMC		
Grantee Address:	40 Alcaniz St So.		
Grantee's Representative:	David Fries	**Telephone No.:**	8502024468
Project Title:	**Citizen Science Water Quality and Habitat Monitoring Network: Community Deployment and Network Sustainability**		

RESULTS: Describe the progress made toward the goals and objectives as stated in the funded grant application.

We have advanced the Citizen Science Software platform, known as Texar and Pensacola Bay Portal, with the development of collaborative software in virtual space (meta space) using Second Life (VR). This new addition provides a unique and innovative experimental cyber-physical platform that combines the physical world (Bay/ou) with extended reality (AR/VR) now with both augmented and virtual reality capabilities demonstrated.

We have produced a virtual Bayview community center that can allow citizen collaborations and remote citizen visits for meetings related to the (Bay/ou). Importantly, the collaborative space will host a (Bayou Frontier Series in Science and Arts) in VR (meta space) with noted national and local speakers in Science and Arts on interesting topics coupled into the Watershed theme. This series will create sustained (repetitive) citizen (1) collaborations, (2) recruitments, and (3) marketing of the (Bay/ou).

We have used an influencer model and are using the Collaborative software to get into the door of influencers and community members. Our networked camera imaging sensors on docks was a parallel way to engage participants. Separately, the shallow water AUV has a completed design and was completely fabricated, supply chain issues for batteries have hampered the ability to test and do trial runs in the (Bay/ou).

We also planned for the expansion of the Citizen Science platform for Bayou Chico in conjunction with the Pensacola Yacht Club, the Satori Foundation and the Bream Fisherman Association. Education outreach and citizen sampling is part of the planned expansion. The Bayou Lecture Series will be marketed to the Chico community and used to engage the 750 yacht club members most who have an affinity for the Bay.

We have also completed a donor funding service structure (Mighty Cause) for future crowdsourced funding of the operation and maintenance of any Citizen Science in the (Bay/ou) to allow for donations from micro donors.

IMPACT: Summarize the organization's key evaluation results related to the funded grant (number of people reached, samples taken, etc.):

A fundamental aspect of the Citizens Science cyber-physical system is the development of Bay observatory infrastructure necessary for wider area coverages, higher resolution, and deeper content in Bay observations. We have demonstrated the physical infrastructure growth by development of low-cost networkable vision sensors for water surface patterns and color from docks and an underwater sonar sensor for fish, with pilot acceptance by key influencers in the Bayou (9 dock sites). The development of the intellectual infrastructure by implementing the meta space Bayou Frontiers Science and Series affords a framework for reaching a number of citizens for recruitment and volunteering: (12-month seminar series, 20 added individuals per month; 240 members at the end of the lecture series). The greater reach of the VR allows for greater access and areal coverage in the Bayou surrounding vicinity and across the city. UWF Chemistry has agreed to partner with IHMC for a summer session class in 2023 for sampling and analysis from dockside sampling machines (20 class size limit). Also the micro donor financial infrastructure completed allows for financial support recruitment from (250 influencers/attendees) and from the water conscious (750 boater and non-boater members).

SUCCESSES AND CHALLENGES: Describe the significant successes and challenges the organization experienced related to the funded grant.

Successes: 1. Establishment of a Bay/ou Science and Art Seminar Series 2. The recruitment of national class speakers on science and design 3. Development of low cost visible and acoustic machines for dock observations and data collection of water conditions of fish presence 4. The development of a machine sampling and analysis 2023 UWF-IHMC class for dock-based citizen science and student education; 5. The development of a novel shallow water AUV for mobile data collection 6. The education of PSC students on water robotics 7. FWC supplemental funds ($10K) for support of citizen science tech continuation activity commencing July 1, 2022. 8. The interest by FWC to explore partnering with the citizen science for Redfish management and the change in management approach.

Challenge: Supply chain issues have hampered the Navy's ability to acquire last power cells for the AUV. We are working on this actively to innovate around this recognized global issue.

LESSONS LEARNED: Describe what the organization learned based upon the results, successes, and challenges reported. Address programmatic, evaluative, or organizational changes that will be made based upon these lessons learned.

The development of this ground-breaking environmental observatory infrastructure requires a multi-pronged and extended period/phased effort. Growing an observatory would typically require significant financial support just for the definition and planning stages of such a complex task. The advancements listed in this report are the beginning of a multiyear process and progress. Volunteers in the community are the key to the observatory and grid. Establishment of processes for the recruitment of volunteers for operational execution will be made to facilitate program future program execution.

This report is submitted in accordance with the reporting requirements of Agreement No. FY2022-05 and accurately reflects the activities associated with the project.

Signature of Grantee's Representative	Date
David Fries Research Scientist and PI	
Print Name and Title	