

The Project WiCCED Network in Action, November 2022

Greetings! Project WiCCED team members have been hard at work. Here are a few updates from the field, lab and the classroom.



USGS Work with EPSCoR Project WiCCED Threat 1 -Salinization

EPSCoR Project WiCCED worked with the USGS to survey the Delaware Bay Area for Data to improve understanding of groundwater salinity and below-ground geology. Rising sea level, increasing frequency and intensity of coastal storms and increasing demand for groundwater have amplified the risk of saltwater impacting water supplies in the region. To learn more <u>click this link</u> for the USGS media alert and <u>click this like</u> to hear from our very own Dr. Holly Michael, Director of the Delaware Environmental Institute and Project WiCCED Research Lead, talk about the project.

EPSCoR Project WiCCED Social Dimensions and the USDA Climate-Smart Commodities Initiative:

Kent Messer, EPSCoR Project WiCCED Principal Investigator, and the Center for Behavioral and Experimental Agri-environmental Research, as

well as some external collaborators, have been awarded funding of \$70 million by the U.S. Department of Agriculture's Partnerships for Climate-Smart Commodities Initiative. The goal of this funding and partnership is to accelerate farmers' adoption of climate-smart



practices, which includes support funding for Black and Native American producers.

CBEAR has also partnered with Fields of Mars to better translate research to a more sustainable path with regards to climate change. With more climate-smart practices being researched, policies regarding agriculture would change to more evidence-based policies, ensuring more climate-smart practices to be implemented by all farmers across the United States, including Delaware.

EPSCoR Project WICCED Microbiome Core Catalyzes NSF Grant:

The dimensions of biodiversity awareness will explore how microbes in typically cold soils are adapted to that environment and whether similar adaptation in geographically separated cold soils. These soils are taken from Alaska, Finland, Antarctica, and Tibet. The project supports an additional Ph.D. student with \$500,000 in National Science Foundation funding, \$2.5 million in U.S. funding total, and other funding from home countries

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of international partners. Understanding soil cycles, especially the cycle of carbon as it leaves the cold soil during heating, is important as it could impact and accelerate climate change.

Alexa Bennet, EPSCoR Project WiCCED P.h.D. student, worked on a method to analyze cold soil samples which was then used to look at a new group of soil microbes, the Acidobacteriota. The method developed in Project WiCCED used in the Dimensions of biodiversity project will determine whether the Acidobacteriota at sites in Finland and Alaska are the same.

Engaging Undergraduate Students in Project WICCED:

Delaware EPSCoR actively recruits and engages undergraduate students in Project WiCCED related research,



research across every threat, solution and core student participants are currently enrolled in related majors or have an interest in a career science. education and economic development to help develop and prepare the next generation of diverse scientific leaders. Project WiCCED has funded 482 undergraduate students across the state of Delaware (University of Delaware,



Delaware State University and Delaware Technical Community College) to participate in research area. All Project WiCCED in environmental

Many of the students participating in our undergraduate research programs move on to pursue professional and advanced degrees in STEM.

EPSCoR Project WiCCED Threat 4: ONE Health Lab Research

The research from Threat 4 of Project WiCCED helps to answer the question of "In what ways does oyster

aquaculture and restorative oyster reef action improve water quality?" which has a background in the water quality of estuaries.

Several stem fields are addressed in this research topic including, aquaculture, water quality, wetland ecosystem, and land-use/agriculture practices that work to reduce agricultural inputs to the Inland Bays and their ecosystems.

This program and its results on water quality as well as species diversity can be used to better inform policy makers to influence policy changes or human-use of the Inland Bays. The next steps

for both present and future research are divided between 4 tasks. **Task one** is to calibrate and deploy 3 seabird HydroCAT-EP ODO monitoring sondes. **Task two** is to deploy oyster bags at 7 sites and establish artificial habitats. **Task three** is to monitor the water weekly. **Task four** would be to engage with Peers, Public, and Commercial entities for the distribution of information found.

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