*Pictured from left, top row: Samaij Sanders, Kristen O'Neill, Rachael Lazzaro, Olivia Fey
Picture from left, bottom row: Linda Pham, Divine Siam, Rhegan Thomason, Loowyza
Colegrove*

NART Funds Eight Summer 2021 Internships

NOAA's North Atlantic Regional Team was proud to sponsor eight separate internships in Summer 2021 supporting NOAA projects throughout the region, crossing a variety of disciplines and partners. While most were virtual, given travel limitations due to COVID-19, these students found creative ways to contribute to NOAA's science, service and stewardship mission and learn valuable skills for careers supporting the environment.

Samaij Sanders, a junior majoring in Meteorology/Climatology at the University of Delaware, interned with Delaware Sea Grant (DESG) and NOAA's Regional Climate Services (RCS) and Office for Coastal Management (OCM). A self-described 'global citizen,' Sanders studied abroad in Greece as a freshman and learned about the internship opportunity through an advisor.

"My goal is to help promote utilization of climate change tools to assist in local decision-making," said Sanders, who has always been fascinated by the weather news.

Sanders worked alongside **Kristen O'Neill**, a senior majoring in Environmental Science at the University of Delaware, who also interned with DESG and NOAA RCS, and OCM. O'Neill traces

her love of the environment to a treasured pier on the Hudson River in her hometown of Piermont, New York. O'Neill has fond memories of walks with friends, driving down the pier after getting her license, and school field trips as well as the spectacular view.

O'Neil and Sanders worked together to understand what tools and products municipal decision-makers use and need to build resilience. "Overwhelmingly, the towns we spoke to say that their main problems stem from rising sea levels and increasing flood events," said Sanders. Sanders and O'Neill began looking at what kinds of climate change information is needed to address these priorities at the municipal level and then planned a virtual workshop for private sector consultants and engineers to introduce them to additional data and tools.

Olivia Fey was very comfortable with a virtual internship after graduating from an online high school. Now a junior at Swarthmore College outside of Philadelphia, Pennsylvania, Fey has self-designed a major in Environmental Science, Technology, & Sustainability. As an intern sponsored through NOAA's Center for Satellite Applications & Research (STAR), Fey helped apply satellite-derived data to coastal resource management in Virginia's Middle Peninsula.

Fey was excited to spend the summer focusing on environmental issues in her home town of Severna Park, Maryland. She grew up in the Chesapeake Bay area and as part of water quality and pollution class at Swarthmore, took field samples in the bay, observed pollution levels, and identified ways to regulate this pollution. Fey fell in love with aquatic systems and the chemistry and biology within them, and was eager to explore the potential of satellites to understand water quality.

Fey teamed up with **Rachel Lazzaro**, a senior at Temple University who interned for NOAA's North Atlantic Regional Team through the NOAA Chesapeake Bay Office's partnership with the Chesapeake Research Consortium. Lazzaro is a double major in Environmental Science and Computer Science and not surprisingly, is interested in the intersection of technology and the environment.

A talented programmer, Lazzaro worked with satellite data processed by NOAA/STAR and alongside Fey, explored ways to validate these data products with in situ observations provided by partners in Virginia's Middle Peninsula.

Fey and Lazzaro were also interested in learning communication skills to complement their technical backgrounds. Lazzaro and Fey explored different potential satellite data applications with partners at Virginia's Center for Coastal Resources Management and the Chesapeake Bay National Estuarine Research Reserve in Virginia and worked to understand, outline, and anticipate their data needs.

They also found the project gave them new insights into how important sharing environmental data with communities is to achieving environmental justice.

"Understanding the connection between environmental justice and public health is something that I am passionate about, and this internship with NOAA has been an incredible opportunity for hands-on work in achieving environmental equity," said Lazzaro.

Divine Siam is a junior majoring in Environmental Science at UMass Boston. Siam was inspired by her childhood passion of learning about and caring for nature and animals.

Siam interned with the Waquoit Bay National Estuarine Research Reserve (NERR) in Falmouth, Massachusetts on Cape Cod and focused on salt marsh monitoring. She especially enjoyed identifying *Sesarma*, the purple marsh crab, and learning about how its diet and burrowing habits are contributing to salt marsh die-off. Siam collected data for a 'squishiness' index – a way to understand how the salt marsh is changing over time based on how deep your foot sinks when walking on the marsh. A more squishy marsh signifies weak peat, indicating higher levels of carbon being released.

A purple marsh crab (Sesarma Reticulatum) in the Waquoit Bay NERR. Photo credit: WB NERR

Linda Pham also interned at the Waquoit Bay NERR last summer. Pham is a junior at Boston University, majoring in marine science, and credits her advisor with bringing the internship opportunity to her attention.

"I want to learn more about marine conservation and how I can help extend the life of marine ecosystems," said Pham. "The ocean is an amazing place and as of now, only 20% has been mapped. I want to help explore the other 80%."

Pham worked on an animation describing the role of oysters in the nitrogen cycle sponsored by the NERRS Science Collaborative as well as videos on horseshoe crabs and osprey with standards based lessons for grades 3-5.

Loowyza Colegrove interned with Woods Hole Sea Grant virtually from her home in Arcata, California. Colegrove is a junior at Humboldt State University majoring in Biology, and an enrolled member of the Hupa Tribe. She enjoys watching mother and baby otters on the Trinity River outside of her parents' home.

Colegrove applied for the Woods Hole Partnerships in Education Program (PEP) because she wanted to learn more about NOAA and meet students with similar interests. As part of her internship, Colegrove created learning activities for teachers from the NOAA Live! webinar archive, and helped develop a new searchable directory for the popular webinar series. She also analyzed participant data to help program leaders better understand their growing audience.

Siam and Pham during a day of field work in the salt marsh. Photo credit: WB NERR

Rhegan Thomason graduated from the University of Texas at El Paso in May with a Biology degree. She learned about PEP through a NOAA presentation to her limnology class in the spring, and started her application that day.

"I really wanted to meet people from NOAA, and just other scientists in general. I've always loved the water and marine life, and being from the desert I never really get to experience it… so I promised myself that I would have a career working with the ocean in some way," said Thomason.

Thomason worked with mentors from NOAA's Northeast Fisheries Science Center (NEFSC) to investigate how to incorporate data from NOAA's NERR system into ecosystem-based fisheries management. Using data from the four NERRs in New England (Wells, Great Bay, Narragansett, Waquoit Bay), she produced a workflow to acquire, process and visualize reserve data and published the code on Github. This data workflow will be incorporated into NEFSC's State of the Ecosystem reports that are presented annually to the New England and Mid-Atlantic fisheries management councils.

The NART looks forward to sponsoring more interns in 2022. Click here to learn about student opportunities available throughout NOAA!