

# Annual Report 2019

Dickinson



# Our Mission

The Alliance for Aquatic Resource Monitoring (ALLARM) is Dickinson College's community science center, located in Carlisle, Pennsylvania.

ALLARM educates communities to use science as a tool to investigate water quality health and use findings to inform stream protection and restoration efforts. ALLARM achieves its work in collaboration with numerous non-profits, agencies, community, and volunteer partners.

Cover: ALLARM's Outreach and Communications Specialist, Hayat Rasul wading in a stream between sampling.

This page: Watershed Coordinator Xinyi Wu '19 obtains a sample from a tributary of the Conodoguinet Creek in March of 2019.

# Dickinson

A person wearing a white jacket is seen from the side, using a long, thin metal pole to clear snow from a stream. The stream is partially frozen, and the surrounding area is covered in a thick layer of snow. Bare, snow-laden branches are visible in the background.

# Letter from the Director

If I had two words to describe 2019, they would be transition and innovation. It has been thrilling to build from pilot efforts in the previous year to fully launch Susquehanna Stream Team. This new initiative has been a wonderful opportunity to engage diverse new and current partners, underscoring the importance of collaboration to do our work effectively.

This year also marked transition as Jinnie Monismith, ALLARM's assistant director of twelve years moved from full time to part time to focus on her family. We also said "see you later" to our Outreach Manager Natalie McNeill as she entered law school. We were thrilled to welcome back Hayat Rasul, a 2019 graduate as ALLARM's new Outreach and Communication Specialist.

We have a lot to be thankful for in our 33 years; our volunteer collaborators, team, community partners, colleagues, funders, and Dickinson College.

In appreciation,

A handwritten signature in black ink that reads "Julie Vastine". The signature is fluid and cursive, with a long horizontal stroke extending from the end of the name.

Julie Vastine, Director

# Volunteer monitoring and technical assistance

## We collaborated with...

- Trout Unlimited
- Chesapeake Bay Foundation
- Environmental Protection Agency
- Head of the Bay Alliance
- PEC
- County Conservation Districts
- Master Watershed Stewards and Coordinators
- National Water Quality Monitoring Council
- Citizen Science Association
- Johnston's Run Revitalization Council
- Otsego County Conservation Association
- Pennsylvania Department of Environmental Protection

## And more...

Watershed Coordinator  
Abby Kaija '21 presents  
on macroinvertebrate  
identification for the York  
County Stream Teams.



## Data Credibility

ALLARM's lab team verified that volunteers are collecting credible data of known quality. ALLARM's Quality Control Program analyzed **190 water samples** (equaling over **1,100 tests**), supporting community partners and volunteers investigating water quality questions.


## We led 17 water quality monitoring workshops that reached local and national community members.

These included three national workshops focused on study design and volunteer engagement. Of the 17 workshops, 6 were dedicated to Stream Team volunteers to explore chemical and biological monitoring techniques.

## We worked with diverse partners across the Chesapeake Bay Watershed to provide technical assistance.

We collaborated with local community members, watershed associations, county conservation districts, federal organizations, and organizations across the country to explore using water quality monitoring as a tool to inform watershed goals. ALLARM supported a several study design and data interpretation processes with partners.

# Carlisle and campus engagement

A group of approximately 15 people are gathered on a dirt path in a wooded area. They are all looking towards the left side of the frame, where a young man in a black t-shirt and khaki pants is standing. The group consists of men and women of various ages, dressed in casual summer attire like t-shirts, shorts, and tank tops. The background is filled with dense green trees and foliage, with sunlight filtering through the leaves. The path is made of dirt and has some fallen leaves scattered on it.

Watershed Coordinator  
Matt Zaremba '20 speaks  
about the importance of  
the LeTort Spring Run to  
Dickinson College Alumni  
and community members.

## **We presented in 7 Dickinson College classes and at 2 alumni events.**

We presented in a wide array of classes on familiar and new topics. ALLARM was thrilled to teach in the new citizen science class and we also had the opportunity to lead a discussion on our 30 year LeTort Spring Run dataset. In addition to this, we shared our work at 2 different Alumni events, providing a tour of the LeTort Spring Run for Homecoming Weekend, and participating in the Trustee Sustainability Tour.

## **We engaged faculty, students and community members through on-campus panel discussions.**

In collaboration with multiple centers on Dickinson's campus, we lead panels regarding the importance of environmental protection and watershed monitoring. Julie Vastine, the Director of ALLARM, moderated the Women's Environmental Leadership Panel, including Carlisle Borough Councilor and a secretary of the Department of Conservation and Natural Resources. Vastine also took part of the Water Panel, discussing issues raised from a series of photos that were on display by photographer Edward Burtynsky that were designed to facilitate discussion in research, activism, and support for a future of clean water.

## **We spread awareness of local water quality issues.**

We continued monitoring the LeTort Spring Run in collaboration with the LeTort Regional Authority. We also continued our partnership with the Borough of Carlisle on Stormwater, developing fact sheets and a storymap highlighting best management practices on and around campus.

**Dickinson**

Alliance for Aquatic Resource Monitoring  
Dickinson College - Carlisle, PA  
[www.dickinson.edu/ALLARM](http://www.dickinson.edu/ALLARM)

Data Sources: USGS, PADEP, USDS/NRCS  
Map Updated: December 2019



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# Stream Team Reach

2019 marked the official start of Susquehanna Stream Team with crucial funding support from the **Campbell Foundation**. In response to the need to increase spatial and temporal water quality data in the Susquehanna River watershed, ALLARM collaborated with the **Susquehanna Riverkeepers, County Conservation Districts, and Penn State's Master Watershed Stewards** program to launch Stream Team.


Stream Team is a baseline water quality monitoring program. In the first 1-2 years, participants monitor conductivity, nitrate-nitrogen, pH, and temperature monthly and carry out a macroinvertebrate survey. After 1-2 years, volunteers will participate in a data interpretation workshop to identify the stories in their data and determine next steps – new site, additional parameters, etc. Volunteers participate in two quality control checks in their first year and annually after that.

With support from the **Campbell Foundation and the EPA-funded Chesapeake Monitoring Cooperative**, ALLARM is able to loan the necessary monitoring equipment to the teams. At the end of 2019, there were 89 volunteers participating in the program, monitoring 37 sites in Columbia, Cumberland, and York counties!

## 2019 Stream Team Statistics

- 12 workshops and meetings with Stream Team volunteers
- 55 QC samples tested
- 892 data points uploaded

# ALLARM student Watershed Coordinator experiences

A photograph showing two students, a male and a female, working on assembling large black rain barrels on a paved surface. The male student, on the left, is wearing a grey hoodie, a white baseball cap, and khaki pants. He is using a blue-handled tool to work on the top of a barrel. The female student, on the right, is wearing a black t-shirt and blue leggings. She is crouched next to another barrel, with her hands on its side. A black barrel lid lies on the ground near her. In the background, there is a concrete wall, a red SUV, and some bare trees under a clear sky. The scene is brightly lit, suggesting it is daytime.

Watershed Coordinators assist in the assembly of rain barrels that are distributed to community members in the Spring.

**Our student Watershed Coordinators build communication and collaboration skills through events and research opportunities that helped them connect their work at ALLARM to the greater community.**

***In 2019, all twelve of our student Watershed Coordinators participated in a community event or workshop.***

"ALLARM has drilled the idea that all data of known quality has a use into my head, and now I think a lot about how far reaching the implications of this work actually goes." -Tom O'Donnell '19

"This semester [...] I learned how to look into issues of water resources from different perspectives and what [ALLARM's] partners do to ensure that water quality was being maintained." -Karan Shakya '20

"As a result of my ALLARM experience, I am more interested and aware of local policy and community engagement." -Katherine Altamirano '20

"I now have this passion for knowing more about how people interact and use streams and other tributaries that are near to them as a resource." -Angelo Tarzona '21

"I cannot begin to describe how differently I look at any form of water management in other towns. Whether it be seeing rain barrels beside homes, signs on storm drains, or levels of impervious surfaces, I always relate it back to what I have been learning at ALLARM." -Phoebe Galione '21

# Opportunities and updates



Watershed  
Coordinator Rachel  
Krewson '20 collecting  
a water sample for  
testing along the LeTort  
Spring Run.

## **We had new members join our team as full-time staff.**

In the Fall of 2019, we hired Suzanne Hartley as our new Assistant Director and alumna Hayat Rasul '19 as our new Outreach and Communications Specialist.

## **Chesapeake Data Explorer**

Over the past several years, through our involvement in the Chesapeake Monitoring Cooperative, ALLARM contributed to the development of the Chesapeake Data Explorer. This regional database houses non-agency data from throughout the Chesapeake watershed. As the Pennsylvania and New York partner, ALLARM has worked with six partners to integrate their data.

**<https://cmc.vims.edu/#/home>**

## **County Connections**

As the Bay states continue to work towards the 31 goals and outcomes identified in the 2014 Bay Agreement, after the latest mid-point assessment, Pennsylvania began taking a phased county approach. Many south-central counties were in the first tier of taking a county approach to achieving watershed goals. This fall ALLARM connected with the Lancaster County Action Team to explore synergies. As a result, ALLARM helped to facilitate a portion of their fall meeting to explore avenues for obtaining and using diverse data being collected in the county. ALLARM is excited to connect community monitoring efforts to the county goals.

# Contributions to the field



Members of Dickinson College's Women in Environmental Leadership panel event pose after the discussion.

Left to Right: Cindy Adams Dunn, Secretary of the Pennsylvania Department of Conservation and Natural Resources; Veronica Coptis, Executive Director, Center for Coalfield Justice; Carlisle Borough Councilor Brenda Landis; Julie Vastine, Director, ALLARM.

## National Connections

In April, ALLARM was appointed as the Volunteer Monitoring representative to the National Water Quality Monitoring Council – a thirty-member council comprised of federal and state agencies and stakeholders to coordinate, communicate, and collaborate around the assessment of our nation's waters. Through this role, ALLARM leads the Volunteer Monitoring Work Group and facilitated four national webinars for the field.

## Conferences

ALLARM ran workshops and presented at seven conferences this year including the PA Watershed Conference, National Monitoring Conference, and the Citizen Science Association Conference. It was exciting to once again be able to bring the entire ALLARM team to the Chesapeake Bay Forum.

## Visits

It was exciting to host the Chesapeake Bay Foundation educators in the fall to explore classroom-friendly water monitoring techniques. ALLARM also enjoyed connecting with the Penn State Extension Master Watershed Steward Coordinators to tour Dickinson's stormwater best management practices and discuss monitoring collaborations.

***We had another successful year deepening our connection to the community science field.***

- 22 events
- 3 national trainings
- 7 conferences

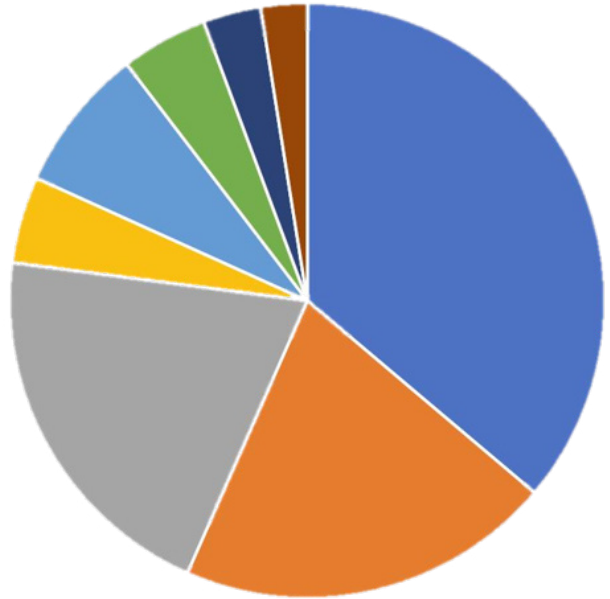
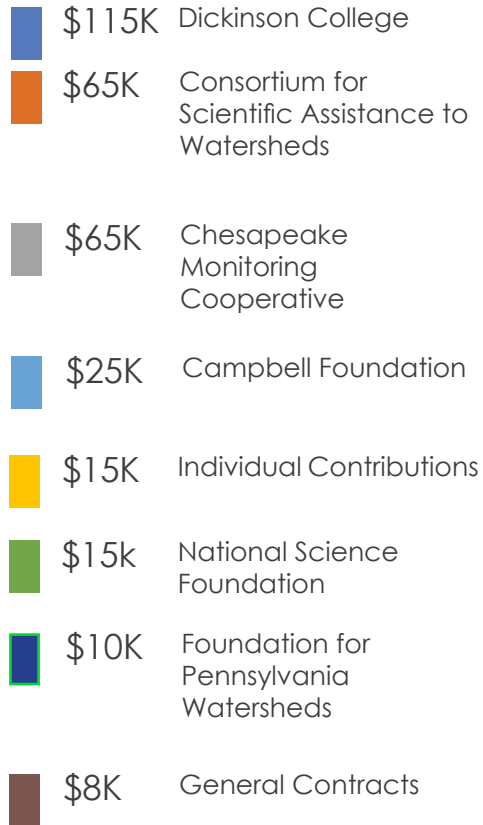


***ALLARM Fall 2019 Staff (Left to Right)***

**Top Row:** Hayat Rasul, Rachel Stosur, Grace Messimer, Helen Schlimm, Matt Zaremba, Karan Shakya;

**Bottom Row:** Julie Vastine, Rachel Krewson, Meredith Jones, Abby Kaija, Phoebe Galione, Katherine Altamirano, Olivia Spildooren, Hiba Aoid

# Funding Sources



ALLARM gratefully acknowledges support from Dickinson College alumni, family, and friends, including John '60 and Ann '63 Curley, and Rick '81 and Mary Shangraw.

ALLARM also appreciates support from the Charles Merrill Kurtz Fund, established in memory of Charles M. Kurtz, class of 1907.

# ALLARM's 2019 by the numbers

3 national workshops

5 states visited (CA, CO, MD, NC, NY, WV)

7 Dickinson classes visited

11 Community partners supported in Pennsylvania and New York

14 regional training workshops

22 events

155 Dickinson students reached

190 volunteers reached

190 water samples analyzed

1100 total water sample tests

14,000+ data points uploaded to the Chesapeake Data Explorer