MMSA

CASE STUDY

Saco/Dayton/ Biddeford

Partnership With

The Ecology School

Professional Development Overview

The Ecology School partnered with Saco, Dayton, and Biddeford schools to provide multiple climate education professional development (PD) opportunities to their teachers in grades preK-12. The PD consisted of two core components:

- A six-week virtual Zoom series inviting guest speakers and providing resources on climate education. Speakers included Revision Energy, Gulf of Maine Research Institute, University of Maine professor Judith Rosenbaum, and the Maine Climate Education Hub.
- A three-day immersive Summer Institute on-site at The Ecology School that gave preference to teachers from Saco, Biddeford, and Dayton but was opened up to other teachers statewide. The Institute involved instruction about place-based learning, a panel of teacher ambassadors already implementing climate education in their classroom, a session on how to combat misinformation around climate science, and sessions connecting teachers to community partners.

Teachers also had an opportunity to plan project ideas with their colleagues to use during the school year.

Location
York County, Maine

Contact
THE ECOLOGY SCHOOL
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IN COLLABORATION WITH

Maine Department of Education
maine environmental education association
NATURE BASED EDUCATION CONSORTIUM

Climate Education Philosophy

"A broader invitation of what climate education means has been extremely helpful in terms of empowering teachers to do it…Because I think it really does get pigeonholed to 'I need to show the bell curve graph of when the Industrial Revolution started and I need to get kids collecting phenological data'… And if we only narrowly express one type of climate education, it's a massively missed opportunity for how we can get more kids involved, more communities involved, and more parents involved."

MEG EDSTROM JONES
The Ecology School

Enabling Conditions

Existing partnership of trust between Saco Schools and The Ecology School.

Culture of place-based and project-based education as well as outdoor learning at the schools.

Investment by the Saco community in combating climate change through initiatives like the Energy and Sustainability Committee.

Supportive school administration invested in teacher autonomy to shift curriculum.

Implementation in the Classroom

Teachers who attended the professional development through The Ecology School approached climate education projects in their classrooms in various ways, demonstrating the expansive vision of climate education espoused by The Ecology School. At Saco Middle School, Amy Ashe led a project that took a data-based approach: examining historical King Tide data and encouraging students to design solutions to mitigate rising sea levels. At Coastal Ridge Elementary School in York, Annette Slone took another approach: focusing her instruction on using technology to design a Living Schoolyard with her 2nd-4th graders.

Examining King Tides

Amy Ashe and Lindsay Wirsing, sixth grade science teachers at Saco Middle School, teach Earth Science. They focused on teaching climate through the study of tides because a focus of their instruction is the moon and it was the most intuitive way for them to adapt their curriculum to include climate. They used local examples like King Tides and data from the Gulf of Maine Research Institute, who they were able to connect with because of their experience in this PD program. The class reviewed graphs of King Tide heights across time and shared noticings and wonderings about the data. At the same time, they were able to meet critical math standards for sixth grade on manipulation of raw data and graphing. The driving question for their students was, "How can we use today's King Tides to plan for the future and the safety of the community?" Students focused on flooding impacts in their community, and as Amy explains, "The flooding was a no brainer. We had a couple of bad storms last year, and the kids were like, 'Oh yeah, it flooded all of Old Orchard Beach and Palace Playland' - places they frequented. So it was really helpful to start local."

Amy assessed student learning by asking students how they could use King Tides to help predict future sea level rise and to propose some solutions that might be helpful for city planners.

Using Technology to Design Living Schoolyards

Annette Slone is a STEAM teacher for grades 2-4 at Coastal Ridge Elementary School. Using their campus trails and Little River as a classroom, students designed methods to minimize visitor impact to the natural landscape, mapped out animal signs in developed and undeveloped areas, and examined the impacts of stormwater on the grounds. Annette brought in technology to the lessons by using surveys created via ArcGIS to develop visualizations of the data students collected. As Annette explains, by focusing the students' studies on their local schoolyard, "we're just building empathy from the ground up." Additionally, Annette sees these projects "as a potential unifying mission for our school, a great way to brand ourselves at a time when public schools need to go on the offensive to tell our story and show our value, and an approach that builds our students into stewards of our local (and far away) lands and waters."

What Was Learned

For the teachers, it was critically important to have the support and buy-in from school administration to instruct on what can be a polarizing issue. Amy Ashe explained that a big fear going into this program was that the district wouldn't be supportive; however, having this grant opportunity come directly from Assistant Superintendent Parkhurst helped because "it takes the pressure off with worrying about it, we can just do our job and show our data and have kids look at it and ask questions about why are things happening."

For the students, they were used to the topic: "They were actually pretty comfortable with the language that we used, like when we said "climate change", they've all heard of it, and so they had been exposed to it, whether or not it was something they saw online or talked about with their families or the news." Annette approached this concern about community perceptions of climate change by framing her projects through an ecological lens and not directly using the words "climate change." Instead, a microscope demonstration where a drop of vernal pool water in which students had been monitoring microorganisms heated up because the lightbulb was left on became a powerful example of the devastating effects of warming waters without actually naming climate change.

For both Amy and Annette, keeping projects local and tied to students' everyday experiences was key in maintaining engagement.

Additionally, having a supportive community partner to take the burden off of the school staff in organizing logistics, sourcing effective resources, and providing pedagogical content knowledge for climate education was key to the successful implementation of the program. Meg Parkhurst, Assistant Superintendent of Schools at Saco Schools, explained at right.

"I think the best, at least in terms of my kids' buy-in, was to try and find something that they've seen on the local news, or that they've seen down their street, you know, like, depending on where you live, what's going on with your amphibians, the trees, are you having invasive species?"

AMY ASHE

"Quite frankly, schools do not have the human resources to pull this sort of a thing together without letting go of other things. So the only way for us to do this as successfully as we did, is to really rely on an outside organization that we can trust and that we work well with to make it come to fruition."

MEG PARKHURST

What's Next

Building upon this grant experience, Saco and The Ecology School are currently seeking funding to continue the program and include structured and incentivized follow-up support between teachers and The Ecology School. They would like to host another Summer Institute with a follow-up event the following spring. Additionally, Zoom meetings will be built in over the course of the year as a way to maintain connectivity with the cohort and provide ongoing support. Finally, there will be an opportunity to arrange either paired observations between teachers in the cohort or a co-teaching experience. Each of these different initiatives will be incentivized with stipends with the goal of creating strong connections that will positively impact students beyond just the single school year.

Moving forward, Meg Parkhurst explains, "I would like to see in the next three to five years that we have a focus on our science education, preK-8, and through that effort, have an opportunity to really look systemically at where climate education is, and what aspects of climate education are introduced and taught and mastered at different grade levels."

MEG PARKHURST

Information

The Climate Education Professional Development Pilot Grant Program, created by L.D. 1902, awards grants for high-quality climate-related interdisciplinary professional learning designed and carried out in partnership with community-based nonprofit organizations. The 3-year program prioritizes communities that have been historically underserved by climate education. From the Fall of 2023 through the Spring of 2026, this grant has awarded over $1.5 million to 30 programs involving more than 50 schools, 400 educators, 50 community organizations, and thousands of students across Maine.

This case study was prepared by the Maine Mathematics and Science Alliance in partnership with the Maine Department of Education, Maine Environmental Education Association, and Nature Based Education Consortium.

ADDITIONAL RESOURCES

Podcast on Ecological Engineering – Coastal Ridge Elementary School

Space Unit Design (Amy Ashe)

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