EDC Education Development Center

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# NOAA 21st CCLC Watershed STEM Education Partnership Grants Program

## Evaluation Report
## January 2023

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# Introduction

This report summarizes findings from the external evaluation of the National Oceanic and Atmospheric Association (NOAA) 21st Nita M. Lowey Century Community Learning Center (21st CCLC) Watershed Science, Technology, Engineering, and Mathematics (STEM) Education Partnership Grants Program.

This report is divided into the following sections:



*EDC recognizes all the grantees and participants who contributed to this evaluation effort and shared photos featured in this report. We, along with NAAEE and NOAA, thank you for sharing your time and expertise with us.*

# Key Terms

The following key terms are used frequently in this report.

- **Nita M. Lowey 21st Century Community Learning Center (21st CCLC) program**: Funded by the U.S. Department of Education, this program supports the creation of community learning centers that provide academic enrichment opportunities during non-school hours for children, particularly students who attend high-poverty and low-performing schools.[1]
- **21st CCLC site**: An individual location that is part of a 21st CCLC program. It may be embedded within a school or other organization (e.g., Boys and Girls Club). Multiple 21st CCLC sites may be under one 21st CCLC program.
- **21st CCLC staff**: Staff who work within the 21st CCLC context, including administrators, coordinators, and educators.
- **21st CCLC youth**: Youth who attend and participate in 21st CCLC programming.
- **Environmental Education (EE):** A process that helps individuals, communities, and organizations learn more about the environment, and develop skills and understanding about how to address environmental challenges. [2]
- **Environmental Education Organization (EEO)**: The primary grantee for the NOAA Watershed STEM Education program. EEOs worked directly with 21st CCLCs to implement programming.
- **Meaningful Watershed Educational Experience (MWEE)**: An environmental education framework originally designed by NOAA for use in the formal K–12 school environment. In this program, EEOs and 21st CCLC staff adapted the MWEE framework for use in the 21st CCLC context.
- **Out-of-school time (OST)**: The informal learning environment that occurs outside of the formal school context. These environments include afterschool, weekend, and summer programming. OST programs may be held in schools, community-based organizations, museums, or libraries.

[1] Office of Elementary and Secondary Education. (2022). *Nita M. Lowey 21st century community learning centers*. https://oese.ed.gov/offices/office-of-formula-grants/school-support-and-accountability/21st-century-community-learning-centers/

[2] North American Association for Environmental Education. https://naaee.org/about/ee

# Program Overview

The North American Association for Environmental Education (NAAEE) implemented the 2020-2022 NOAA 21st CCLC Watershed STEM Education Partnership Grants Program through a cooperative agreement with NOAA, which holds an interagency agreement with the U.S. Department of Education (ED). The program partnered with grantees from 30 EEOs in 17 states, with one to eight 21st CCLC sites in each state, serving youth from about 97 21st CCLC sites (Figure 1). Building on the 2017 pilot program, the 2020-2022 program intended to foster new out-of-school partnerships between 21st CCLC sites and EEOs to increase STEM learning and environmental education during non-school hours for youth throughout the country.

## Background

As a part of this program, EEOs implemented NOAA's MWEE framework, a framework designed for the formal K-12 setting. NAAEE and NOAA encouraged EEOs to implement the MWEE framework in addition to capacity-building, planning, and partnership-building activities with 21st CCLC sites. NOAA and NAAEE selected EEOs across the seven geographic areas served by the NOAA Bay Watershed Education and Training (B-WET) program: California, Chesapeake Bay, Great Lakes, Gulf of Mexico, Hawaii, New England, and the Pacific Northwest.

**Figure 1: Grantee sites by state**

## What Is a MWEE?

The MWEE is a learner-centered framework that focuses on investigating local environmental issues that lead to informed action by actively engaging students in building knowledge and meaning through hands-on experiences.

MWEEs:

- Are composed of multi-stage activities
- Aim to increase the environmental literacy of all students
- Help students understand basic watershed concepts and the interaction between natural systems and social systems
- Highlight the connection between human activity and environmental conditions

# The MWEE Framework

Designed for the K–12 environment, a MWEE consists of **four essential elements** and **four supporting practices.**[3]

**Essential elements** describe "what students do." They include:

**1. Issue definition.** Students focus on a driving question defined by the teacher. To support youth voice and deepen learning, students co-develop supporting questions with teachers to better understand the driving question and the environmental issue.

**2. Outdoor field experiences.** Students participate in multiple outdoor field experiences to explore the driving question and strengthen their connection to the natural world. They plan and conduct the field investigations and develop supporting questions to explore the driving question in the field.

**3. Synthesis and conclusions.** Students reflect on each experience and investigation in relation to the issue and share their claims and conclusions with each other. Teachers should plan for this to occur regularly throughout the MWEE.

**4. Environmental action projects.** Students identify solutions and develop environmental action projects to address the issue within their school, neighborhood, or community. Students are actively engaged in and, to the extent possible, drive the decision-making, planning, and implementation of the project.

**Supporting practices** describe "what teachers do." They include:

**1. Facilitation.** Teachers balance facilitation, instruction, and coaching to create a student-centered experience in which the MWEE essential elements support learning goals and create opportunities for students to engage in the learning process.

**2. Learning integration.** MWEEs are a means of enriching lessons for deeper student learning while meeting academic standards. MWEEs are not meant to be something "extra." To achieve this vision, teachers embed MWEEs into the school curriculum to support goals for learning and student achievement.

**3. Sustained experiences.** Teachers incorporate MWEEs into a unit or multiple units, so learning occurs both in and out of the classroom. While an individual lesson may occur in one class period or field experience, that lesson or experience should be explicitly connected to the larger learning sequence of the MWEE.

**4. Local context.** Teachers use their local environmental and community context to learn about and connect what is relevant to students' lives.

[3] For more details about the MWEE essential elements and supporting practices visit: https://www.noaa.gov/education/explainers/noaa-meaningful-watershed-educational-experience

# Program Model

As NOAA built the MWEE framework for a formal school day, NAAEE and NOAA encouraged EEOs and 21st CCLC sites to collaborate on adapting the framework to best suit the needs of 21st CCLC youth and the local context during OST. Programs occurred in various 21st CCLC settings: afterschool, on weekends, and during the summer. Due to the implications of the COVID-19 pandemic, many EEOs conducted professional development (PD) with 21st CCLC staff as part of the grant even though it was not a stated focus of the program model.

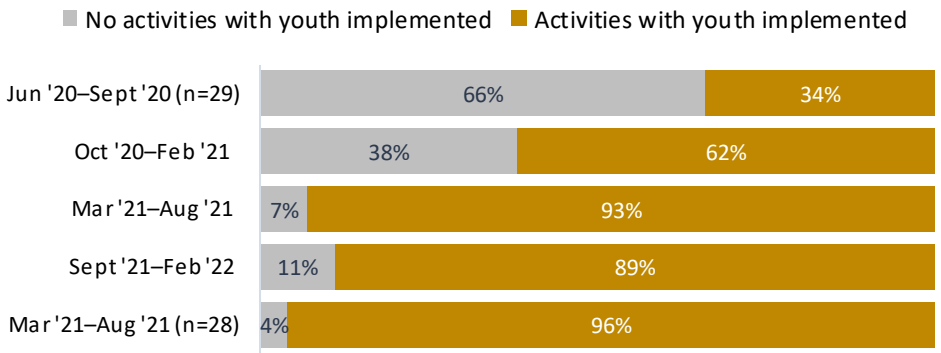
NAAEE and NOAA originally designed the program to be implemented over a two-year period. From the start, EEOs focused on developing partnerships with 21st CCLC sites to design and implement two years of programming with youth at 21st CCLC sites. See Appendix A for the program logic model and Appendix B for the intended outcomes for youth, 21st CCLC staff, and EEO staff.

## COVID-19 Implications

The COVID-19 pandemic began in spring 2020 as the program got underway, delaying the program start and restricting the ability of EEOs to meet with 21st CCLC staff in-person.

As a result, EEOs conducted some virtual and in-person 21st CCLC staff trainings and began activities with youth at staggered intervals in the first year of the program. All EEO staff, however, implemented in-person programming with youth between 2021 and 2022 despite the delays (Figure 2).

**Figure 2: COVID-19 ramifications delayed EEOs' timeline for working with 21st CCLC youth.* ** Unless otherwise noted, n = 30.**




** (1) n = 29 for the first reporting period because a new EEO was added after this time. (2) Two grantees ended prior to the Mar 2021–Aug 2021 report.*

*** Data are based on grantees' program reports submitted to NAAEE.*

> “I just think it adds like—it’s almost special because it’s theirs. **It’s something that they see every day**, just their local environment, learning about things that are in their area, different bugs, different water creatures, and things like that.
>
> So, **it just adds like that personal touch to it to make the students really want to take care of their environment because they know that this is their home.**
>
> *—21st CCLC Staff*

## Participation*

- 30 EEO grantees
- 97 21st CCLC sites
- 5,970 youth
- 830 21st CCLC staff
- 7 NOAA B-WET regions
- 263 science experts

## Program Formats

- Virtual
- In-person
- Hybrid

## Locations

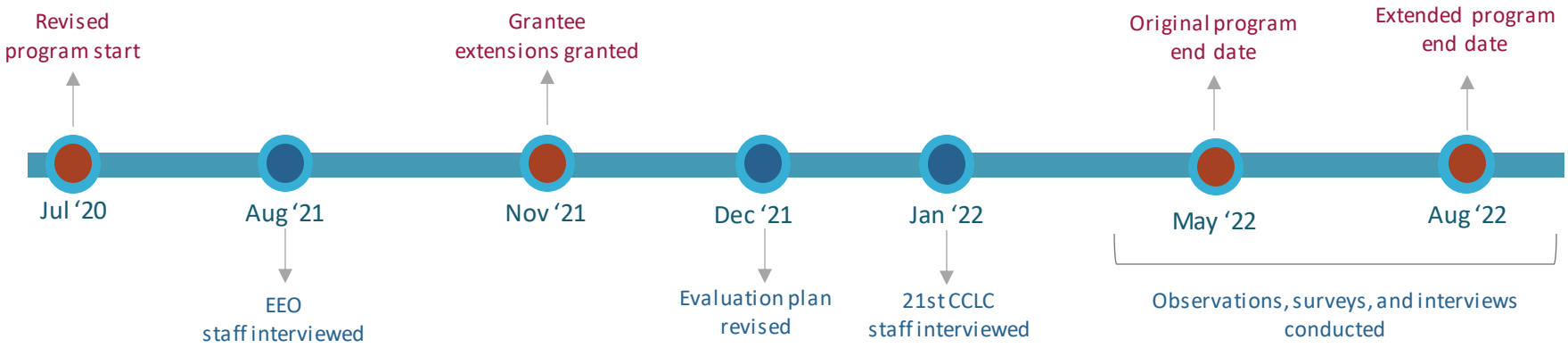
- Summer camps
- Afterschool sessions
- Field trips during school days
- Weekend excursions for families and youth

** Data are based on grantees’ self-reported program information and were not collected directly by EDC.*

# COVID-19 Pandemic Adaptations

Due to the impact of the COVID-19 pandemic, the program followed a revised timeline for both EEOs and 21st CCLCs (Figure 3). NAAEE and NOAA granted program extensions that allowed in-person activities to occur through late summer/early fall 2022. NAAEE, NOAA, and EDC revised the evaluation plan accordingly to match the realities of implementation.

**Figure 3: The COVID-19 pandemic required the revision of program implementation and evaluation timing.**

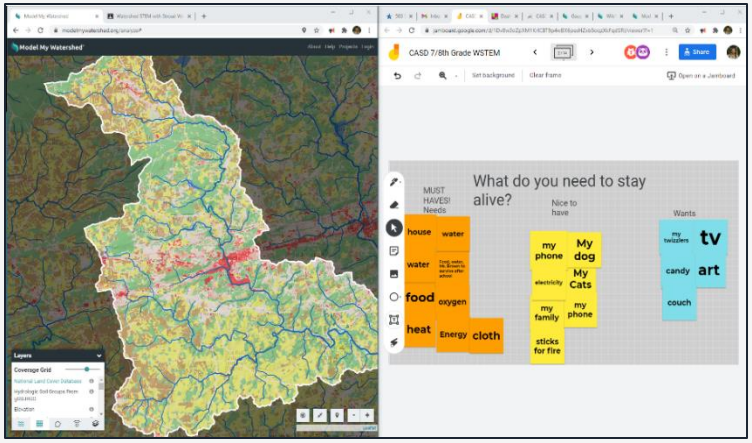



## Activity Adaptations

In addition to delaying the implementation timing, the pandemic influenced program partnerships, format, and types of activities that EEOs shared with youth. Following are example adaptations:

- Developed take-home kits
- Virtually joined activities where youth were gathered (Figure 4)
- Canceled activities
- Hosted virtual PD sessions with staff or conducted no session

**Figure 4. Example of virtual program activity**



# Evaluation Approach

Over the course of the grant, EDC, NOAA, and NAAEE worked together to discuss data collection protocol development, findings, program updates, and emerging needs using a culturally responsive evaluation approach.[4] Examples of culturally responsive practices incorporated into this evaluation include reflections on evaluator bias; examinations of power dynamics between EEOs and 21st CCLC sites; and considerations of context at all stages of the evaluation. EDC met monthly with NOAA and NAAEE to adapt the evaluation plan to fit the realities of implementing the program during the pandemic. EDC staff also periodically joined grantees during NAAEE Coffee and Chats to better understand their contexts, challenges, and successes.

## Evaluation Goals

EDC worked closely with NAAEE and NOAA to develop a program logic model. Then based on the logic model, EDC co-developed an evaluation plan to better understand outcomes for 21st CCLC youth, 21st CCLC staff, and EEO staff and to gather data on the partnerships between EEOs and 21st CCLC sites. As the pandemic impacted grantees and data collection, we also revised the evaluation questions to match revised program implementation (see Appendix C for revised evaluation questions). Specifically, the goals of the evaluation were to:

- Document ways in which MWEEs are implemented in 21st CCLC settings
- Examine the extent to which outcomes for EEO staff, 21st CCLC staff, and 21st CCLC students are reached
- Understand partnerships formed between grantees and 21st CCLC sites
- Understand the relationships formed between staff, students, and STEM experts
- Provide feedback to NAAEE, NOAA, and ED for program improvement and learning

[4] Frierson, H., Hood, S., & Hughes, G. (2002). A guide to conducting culturally responsive evaluation. In J. Frechtling (Ed.), *The 2002 user-friendly handbook for project evaluation* (pp. 63-73). National Science Foundation.

# Evaluation Overview

## Data Collection and Analysis

EDC used a mixed-method data collection approach. Specifically, we collected data through interviews, observations, surveys, and focus groups. Participants included EEO staff, 21st CCLC staff, and youth participants (Table 1). To collect survey and focus group data at scale, EDC coordinated with NOAA to apply for a Paperwork Reduction Act (PRA) clearance from the Office of Management and Budget (OMB) as required. EDC then collected and analyzed observation, focus group, interview, and survey data (see Appendices D-I for information on methods, protocols, and data summaries).

**Table 1: Data collection**

| | Total completed | No. of grantees represented |
|---|---|---|
| Interim EEO staff interviews | 9 | 9 |
| Interim 21st CCLC staff interviews | 9 | 9 |
| Program observations | 26 | 13 |
| Youth focus groups | 10 groups/32 students | 10 |
| Summative EEO staff interviews | 9 | 9 |
| Summative 21st CCLC staff interviews | 9 | 9 |
| EEO staff surveys | 39 | 28 |
| 21st CCLC staff surveys | 35 | 19 |

Quantitative survey data were analyzed to understand program outcomes and partnerships. Qualitative data from surveys and interviews with 21st CCLC staff and EEO staff and youth focus groups were subsequently coded to further complete the implementation picture, to understand programmatic decision-making, to document challenges and successes of MWEE implementation at a particular site, and to gather youth perspectives.

## Limitations

This evaluation has several limitations. As a result, the data give a picture of implementation, but readers should exercise caution in generalizing the findings across grantees and their 21st CCLC sites. Limitations include:

- The COVID-19 pandemic restricted how EEOs and 21st CCLCs implemented programs as well as some of EDC's data collection activities (e.g., we observed only two days of programming instead of the originally planned three days).
- While we intended to observe an outdoor field experience and an environmental action project for a sample of 13 grantees, we conducted observations at the convenience of the EEO and 21st CCLC staff. As a result, conducting observations of similar types of days across EEO sites was not always feasible.
- Per PRA restrictions on data collection, EDC was limited to conducting only nine interviews with EEO staff and nine interviews with 21st CCLC staff.

# Key Findings

This section details the overarching key findings across data sources and is divided into the following five subsections:

1. Youth Experience
2. Implementing MWEEs in OST
3. EEO and 21st CCLC Capacity Building
4. Grantee Partnerships
5. Grant Oversight and Community

# 1. Youth Experience: Key Findings

21st CCLC youth:

- Engaged in program activities
- Demonstrated an awareness of and positive connections with nature
- Communicated how they can help take care of their environment

The nature-based experiences, the novel hands-on activities, and the sustained relationships with EEO staff contributed towards these outcomes for youth.

# 1. Youth Experience

## Youth responded positively to opportunities to learn in a new way—being outdoors and engaging in hands-on, active experiences.

> "My students were really involved and curious at the same time. **They learn more outside the classrooms than inside.**
>
> *—21st CCLC Staff*

> "**My favorite part was seeing all the bugs everyone caught and learning about them.** I learned that dragonfly nymphs live in the water for 5 years and once they grow up, they only fly around for 1 year.
>
> *—21st CCLC Youth*

During focus groups, nearly all activities that youth described as "liking best" took place outside. Youth talked about liking how the program allowed them to **learn new things, have fun while learning, and go to new places.**

These experiences fit with the goals of many 21st CCLC sites, which seek to offer hands-on enrichment that complements what youth are learning in school but in a more active manner. 21st CCLC staff noted that field trips were especially engaging because they offered the opportunity for additional hands-on exploration.

Even when not on a field trip, youth exhibited excitement to be outside, such as in the schoolyard or in the woods behind the building. Many 21st CCLC staff noted that youth typically did not engage in learning activities outside, and that outdoor time was for recess. Also, 21st CCLC staff and EEO staff commented that youth seemed more focused outdoors as it was a different learning environment.

**Examples of how youth explored their environment:**

- Snorkeling to collect data on coral health
- Investigating bog depths
- Searching for macroinvertebrates in local bodies of water
- Looking at pill bugs while weeding plants
- Kayaking
- Taking pictures of plants and insects during a BioBlitz

# 1. Youth Experience

## Youth were exposed to ways they can help take care of their environment.

21st CCLC staff mentioned that the project-based nature of action projects offered youth the opportunities to learn about and care for their local environment. Whether it was picking up trash, creating public service announcements, or presenting what they learned to their community, youth at several sites practiced ways they could have a positive impact on the environment. 21st CCLC staff appreciated the opportunity for youth to be engaged and to learn about how they can make change happen.

In focus groups**, youth noted that they learned about how to interact with and help their environment and that they felt they could take action to protect their local environment. They also shared some ways they might do this in the future.** Many ideas mirrored what youth did or learned about in the program (e.g., picking up trash, removing invasive plants). They also described the importance of telling other people about taking care of the environment and shared ways they could do that.

### Environmental Action Projects

Environmental action projects varied in depth. For example, projects were seen as either a sustained project (e.g., planting pollinator gardens) or as a one-day activity not tied to a larger learning sequence (e.g., painting rain barrels).

However, EEO staff tended to plan projects with little input from youth. While programs generally engaged youth in how to help take care of their environment, the absence of youth-led, sustained environmental action projects meant that this element was not carried out as defined in the MWEE framework.

> “**I think we should tell other people to take care of our environment** and think about things that you do before you do it.
>
> *—21st CCLC Youth*

# 1. Youth Experience

## Youth enjoyed engaging with and learning from EEO staff.

Unlike one-time programs, the multi-day or multi-week programs enabled EEO staff and 21st CCLC youth to form relationships. EEO staff appreciated this opportunity for sustained engagement with youth. Additionally, **youth talked about interacting with EEO staff and how EEO staff facilitated activities that youth would not normally do afterschool** (e.g., hands-on activities exploring nature, using real science equipment). One of the few things that youth said they did not enjoy about the programs was when EEO staff left.

21st CCLC staff also noted that youth enjoyed having the EEO staff at the programs and looked forward to the days when they would come. Youth mentioned that EEO staff had a passion for their field and careers and brought that enthusiasm and energy with them to the programs, which was engaging for youth.


**In-person interactions between 21st CCLC staff and youth were important for establishing relationships and engaging youth. 21st CCLC staff noted the challenges of connecting with youth when COVID-19-related restrictions limited in-person programming.**

> "There's a direct connection with the way that [EEO] staff are engaged with the material and how they engage with students, and **students wanted to see the passion and the interest of the staff doing the work**.
>
> *—21st CCLC Staff*

> "It's not just grownups talking at them. **It is grownups coming in and talking with them and engaging them and putting their hands on things.** It's really good. And I can tell that it's good because the kids are repeating what they've learned.
>
> *—21st CCLC Staff*

# 1. Youth Experience

## The program fostered youth awareness of and connection to their local environment.

**Awareness.** 21st CCLC staff noted that the programs helped foster an awareness of the local environment that youth may not have had initially. For example, a few 21st CCLC staff noted that youth had limited knowledge about what bodies of water were close by and had never visited them. This gave youth the opportunity to experience these locations first-hand and learn about something in their community that affected them personally. Another 21st CCLC staff member described how youth became knowledgeable about their local environment to the point where they felt like experts and shared some of what they had done and learned with their peers.

### Scaffolding Outdoor Learning

Grantees found that it was important to scaffold youths' learning outside, especially for youth who were new to learning outdoors. For example, some youth were hesitant going outdoors, interacting with nature, and learning in a different way. Therefore, it was important for facilitators to understand how youth were feeling about outdoor activities and to meet them where they were to address their needs. Evidence suggests the presence of 21st CCLC staff during these experiences was beneficial as they had a close relationship with the youth in the program and better understood their needs.

**Personal connection to local environment.** 21st CCLC staff noted that incorporating the local context made the learning more meaningful and real, even for youth who were more familiar with their local environment, because it added a personal element and was not just something youth were seeing in a textbook. For example, during one observation, a young man excitedly took photos of the macroinvertebrates he was finding and noted he was going to post them on the iNaturalist website. Although environmental science was something he was familiar with, he was still excited to be outdoors doing the activity.

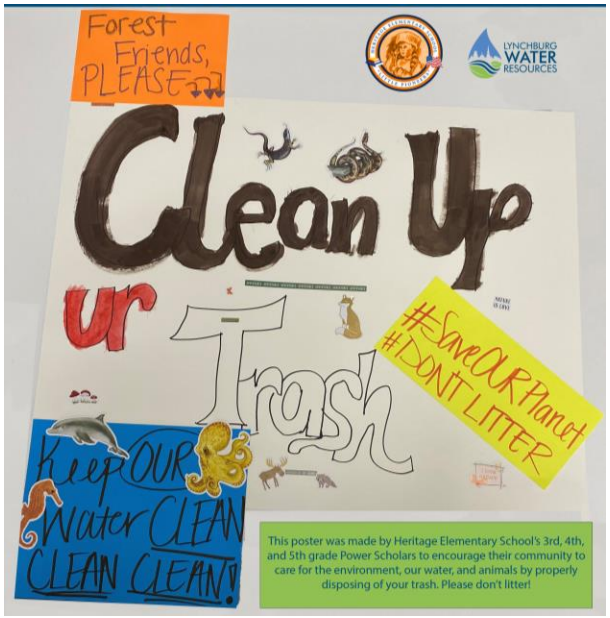
> "**I don't feel like [youth] really identify with the natural world around them because they're really not noticing it.** They're just in their house. The kids are so acculturated to it is "nasty outside," so why would you—other than playing football—why are you going to go out there? ... But they are just so entrapped in the concrete jungle.
>
> Hopefully, we've established some sort of awareness, or beginning of, to take notice around you and notice what's the bigger picture that you're a part of and what are you actually depending upon that you don't know, that you didn't realize before, that you're depending upon.
>
> *—21st CCLC Staff*

# 1. Youth Experience

## The program laid the foundation for youths' continued engagement with nature and issues related to their environment.

21st CCLC staff described how youth were excited to continue engaging with nature outside of the program. For example, one 21st CCLC staff member noted that youth were excited to tell their parents about their field trip and were going to ask their parents to bring them back to the field trip site. According to 21st CCLC staff, parents were also interested in hearing about where youth visited. During an observation at another site, youth were heard talking about where else they might visit, demonstrating an excitement about continuing to engage with nature.

The development of youths' awareness of their local environment may also support their future engagement with environmental issues. One 21st CCLC staff noted that youth need to first notice and engage with their local environment before they can think about issues affecting it and ways they can take action. Evidence suggests these programs provided that connection.




> "I think the benefit of having the students go outside, especially when we took them here locally—again, some of the kids had never been to that specific area—so, having them explore and then hearing them say stuff like, **"Oh my gosh, I'm going to tell my parents to bring me here," or parents, even the day after, saying, "Hey, where did you guys take the students?"**
>
> *—21st CCLC Staff*

> "The kids are just not awake to their surroundings, **so I think that it's helping to awaken them to their surroundings so that they can build on that…**they'll have a reservoir of information or awareness to connect to when they hear about the hurricane pushing water into the marsh when one comes later this summer. There's something there to build upon.
>
> *—21st CCLC Staff*

# 2. Implementing MWEEs in OST: Key Findings

The OST context presented challenges to implementing all aspects of the MWEE framework as designed, leading to MWEEs being modified and abbreviated.

EEO and 21st CCLC staff, however, especially valued the MWEE components of outdoor field experiences and incorporating the local context.

# 2. Implementing MWEEs in OST

## Contextual factors of OST environments necessitated EEOs modifying MWEEs to fit the learning context.

Due to the realities of many 21st CCLC settings, MWEEs were adapted for the following key reasons:

**Inconsistent attendance.** This made it difficult to have a sustained learning experience over multiple days. Issues to be investigated and action projects tended to be EEO-led instead of youth driven, and activities were designed to be completed in one day. This was due, in part, to the fact that youth who decided on an issue or action project one day did not always attend later sessions.

**Limited time.** EEOs needed to fit the program into the time provided by their 21st CCLC partner, which varied by site and time of the year (i.e., summer vs. school year). At observed programs, EEOs had anywhere from 45 to 300 minutes with youth on a given day.

**Off-site field trips.** Some 21st CCLC sites were constrained in their ability to take youth off-site on field trips. When time was limited, such as during the school year, youth did not always have a chance to go off-site. Although some field trips did take place during the school year, it was easier during the summer when more time was available. Other factors, such as the need for parental consent and transportation challenges, also impacted some sites' ability to go off-site.

**Novel, outdoor, hands-on activities.** In interviews, 21st CCLC staff shared that they valued the program because it provided youth with outdoor hands-on enrichment activities that differed from what they did during the school day and afterschool. To make activities more fun and less school-like, EEO staff adapted activities to be more hands-on.

# 2. Implementing MWEEs in OST

## The OST context led to the four MWEE framework elements being done in a "bite-sized" manner—that is, either touched on only briefly or done in a limited scope.

In observations and in interviews, it was noted that all MWEE elements were modified to some extent. For more information about how MWEEs were adapted, see Appendix G.

### Issue Definition and Environmental Action Projects

Activities such as background research into an issue and youth selection of environmental action projects were largely absent in observations. Based on interview and observation data, EEOs primarily drove issue definition and action project planning. These aspects tended to be briefer than other aspects of the MWEE framework.

### Outdoor Field Experiences

Some sites were not able to take youth on "outdoor field experiences" because of restrictions for taking youth off-site. At other times, inclement weather necessitated that a program be moved indoors. EEOs and 21st CCLC staff adapted by using the schoolyard for field experiences (e.g., collecting weather data at the school), by bringing nature into the classroom (e.g., bringing in samples taken from a local creek to do macroinvertebrate identification in the school hallway), or featuring the local environment in program content (e.g., playing a game featuring local wildlife, using virtual resources to show the local environment).

### Synthesis and Conclusions

Time for reflection and meaning-making was not typically emphasized. Brief discussions about the day's topic were often observed as side conversations between educators and youth or quick wrap-up remarks about an activity. The start of a session also offered an opportunity to reflect on the previous session. EEO staff were observed asking youth questions about what they did or learned in previous sessions, such as reviewing what youth learned about macroinvertebrates before doing a macroinvertebrate identification activity out in the field.

# 2. Implementing MWEEs in OST

## Experiencing and learning about the local environment were engaging and valued aspects of MWEEs.

EEO staff interviewed expressed that their organization's overall approach to environmental education (whether intentionally implementing MWEEs or using another framework) centered on connecting to and creating awareness of the local environment, an aspect of the program that was also valued by 21st CCLC staff.

During observations, reference to the local environment was present at all but one program site observed; however, the extent to which this occurred varied. Some programs centered on the local environment and were observed connecting nearly every topic to local wildlife and the local context. Other activities featured the local context to a lesser extent, for example, by talking about a local body of water, but not providing youth with a reference point to allow them to make a clearer connection to its place in their community.

> "A lot of our kids didn't even know [the field site] was around the corner or even that the river was pretty much here in their backyard. **I think it definitely had a positive impact.**
>
> *—21st CCLC Staff*

> "**So, our organization's main focus is to increase awareness and educate the public** and our students about the importance of the waterways in the community, where they get their drinking water, and what role they can play in keeping our source waters clean essentially.
>
> *—EEO Staff*

# 2. Implementing MWEEs in OST

## 21st CCLC staff served an important role in ensuring that youth were comfortable and that the program ran smoothly.

In interviews, 21st CCLC staff shared that they supported youth during programming, and they viewed their role as helping to manage and tend to youth. Specifically, 21st CCLC staff:

- Were more knowledgeable than EEO staff about youths' daily lives, understood more about their communities and cultures, and had existing relationships with the youth in the program.
- Often had an awareness of what youth were experiencing outside of the program that might impact their engagement.
- Knew how to work with individual youth to meet their needs on any given day.
- Were on-hand to help youth (as noted in observations), such as working one-on-one with individual youth, taking them to the bathroom, keeping youth on task, and monitoring safety.

# 3. EEO and 21st CCLC Capacity Building: Key Findings

EEO and 21st CLCC staff developed skills and expertise through participating in this program, and both groups brought invaluable expertise:

- EEO staff were valued by 21st CCLC staff for their content expertise, curriculum development skills, and facilitation styles.
- 21st CCLC staff brought integral expertise in developing relationships with youth and navigating the logistics and contexts at their 21st CCLC sites.

# 3. EEO and 21st CCLC Capacity Building

**EEO staff strengthened their capacities to:**

1. Work with 21st CCLC sites
2. Implement MWEEs in OST

**85%:**[5] Increased their organization's capacity to implement environmental education (EE) programming in the 21st CCLC context.

**85%:** Increased their understanding of the goals and objectives of 21st CCLC programs.

**82%:** Increased their capacity to implement EE programming in the 21st CCLC context.

**77%:** Increased their confidence to incorporate MWEEs into the afterschool context.

**63%:** Increased their organization's capacity to offer PD opportunities to 21st CCLC staff.

**21st CCLC staff members**[6] **strengthened their capacities to:**

1. Work with EEOs
2. Incorporate environmental education into OST

**94%:** Increased their 21st CCLC site capacity to implement EE programming.

**94%:** Increased their awareness of NOAA resources that can be used in instruction with youth.

**83%:** Increased their confidence to incorporate EE programming into their afterschool context.

[5] *Percentage who indicated they agree or strongly agree with the statement.*
[6] *21st CCLC staff members include frontline educators, administrators, and coordinators.*

# 3. EEO and 21st CCLC Capacity Building

## 21st CLCC staff reported benefiting from the professional development they received from EEOs.

Not all 21st CCLC staff participated in PD opportunities with their EEO or were offered PD opportunities. Staff who did participate learned about MWEEs, gained materials, and acquired new ideas.

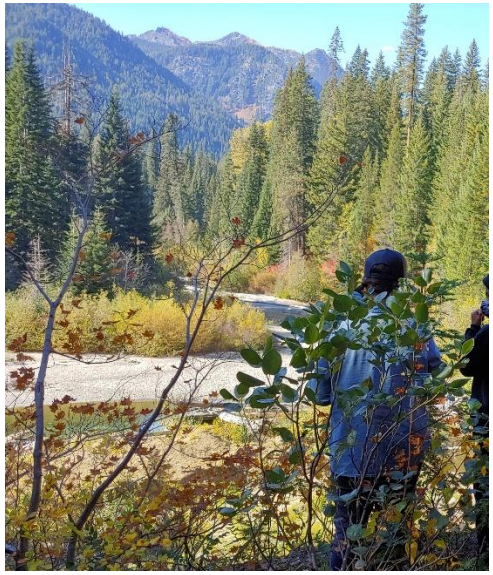
21st CCLC staff also learned about the importance of implementing environmental education programming for youth. However, in interviews, they did not specifically reference "environmental literacy" or its importance (an outcome for 21st CCLC staff).

> "I think there's a lot of materials and ideas that I took away that are just sitting in my notebook; looking for an opportunity to get brought out. That's what I do with work and going to our professional development trainings is just seeing what [the EEO staff] taught us, for example, on that day. **And then I'm pretty sure there's actually some elements that I took from that day and brought into [my] program this year.**
>
> *—21st CCLC Staff*

## We observed 21st CCLC staff applying their learning in a limited way with youth.

21st CCLC staff engagement ranged from behavior management (e.g., sitting down and periodically instructing youth to listen and pay attention) to being present and walking along with youth during activities. In 22 out of 26 observations, 21st CCLC staff did not facilitate or co-facilitate activities with youth—although, they were not necessarily expected to do either task as part of their participation in the program.

At the same time, 21st CCLC staff indicated they learned science content alongside youth by participating with youth and observing EEOs as they facilitated. In some cases, EEO staff hypothesized that 21st CCLC staff will apply what they learned about facilitation strategies and science content to their future work.



# 3. EEO and 21st CCLC Capacity Building

## EEOs reported sporadic use of additional external scientists and resources. Instead, EEO staff served as the key science experts for the youth.

EEO staff who were interviewed generally did not mention incorporating external scientists into their programming (e.g., NOAA scientists). Instead, EEO staff were often perceived to be the science experts by 21st CCLC staff and youth. EEO staff indicated they were aware of how they could connect with NOAA scientists and were appreciative of the encouragement to do so. In at least one instance, representatives from NOAA connected EEO staff with local NOAA staff to discuss ideas.

EEO staff acknowledged that there were NOAA-related resources that were available for them to use. While EEO staff may not have always taken advantage of those resources, they were glad that they were available as needed. From grantee reports, some EEO staff shared that they used NOAA partners (e.g., "NOAA Fisheries Milford Lab partners") and other external resources (e.g., the GLOBE database).

> "I don't know if you would consider it an advisor, also, for NOAA and NAAEE… **[she was] kind of like a mentor… when I did have questions, she was able to answer those**… We would plan to meet every month, but I think that wasn't really necessary; it was really more of like here's a question that comes up… I just needed somebody to bounce ideas off.
>
> *—EEO Staff*


> "So, I think when we were first doing the grant, and they were encouraging us to use NOAA partners, right where we are, we don't have a lot of options at the federal level of folks. But we did, and we were previously connected and are still connected with our local through [State] Sea Grant. There's an office about an hour north of us, and they are at NOAA; they're connected with NOAA. **So, I guess the encouragement and using the partners that are connected to NOAA and NAAEE, it was good to have that.**
>
> *—EEO Staff*


# 4. Grantee Partnerships: Key Findings

EEOs and 21st CCLCs reported consistent staffing and solid two-way communication as key factors in supporting promising partnerships.

# 4. Grantee Partnerships

## Several key characteristics emerged among promising partnerships.

EEOs and 21st CCLC staff found value in their program partnership (Figures 5 and 6). Looking deeper into partnerships that found the most success, several key characteristics emerged. Specifically, EEO and 21st CCLC staff shared how relationships seemed most productive when there was:

1. **Clear communication**
2. **Consistent staff**
3. **Flexibility**
4. **Agreement on the goals of the program**
5. **Knowledge about staff and sites**

**Figure 5. EEO staff thought their partnerships with their 21st CCLC sites were successful* (n = 39).**

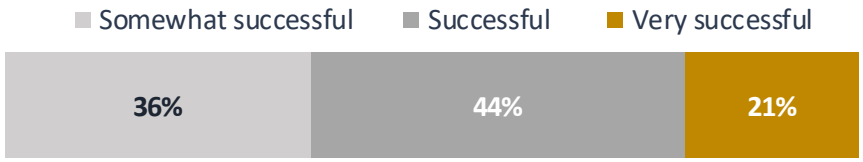
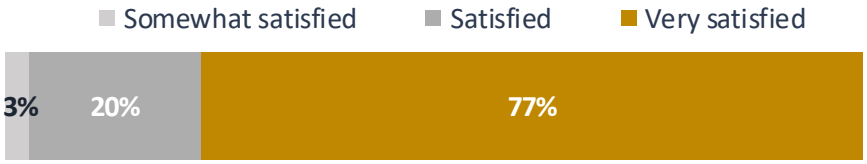



**Figure 6. 21st CCLC staff were satisfied with their partnerships with their EEOs* (n = 35).**




** No respondents selected "very dissatisfied," "dissatisfied," or "somewhat dissatisfied."*

## Lack of trust and poor communication were key barriers to forming partnerships.

Although the COVID-19 pandemic exacerbated challenges with relationship building, when there was a lack of trust in the relationship, EEO and 21st CCLC staff were less ready to work collaboratively.

> "I think we had probably the best relationship with the [specific site staff]. **They had the best communication, and their site coordinator was doing this full-time as a coordinator and not like teaching it.** I think that he had more bandwidth to do some more planning. So, we were able to meet with them more often.
>
> *—EEO Staff*

# 4. Grantee Partnerships

## Five key characteristics of promising partnerships included the following:

### 1. Clear communication

EEO and 21st CCLC staff identified the most productive relationships they had with their 21st CCLC sites by the level and quality of communication they established. 21st CCLC sites also valued and recognized good communication from EEO staff. **EEO staff emphasized the importance of being available to meet with 21st CCLC staff and include them in the planning process and decision-making from the start as it helped ensure that programming was appropriate for the site and the youth.** Over the course of the program, EEO staff communicated with 21st CCLC staff (e.g., sending an email after an activity to reflect on the day), which kept 21st CCLC staff informed on how the program was received. EEO staff also shared information with 21st CCLC staff at multiple levels (e.g., site directors and coordinators, as well as educators).

### 2. Consistent staff

**Given the high level of staff turnover at 21st CCLC sites, EEO staff were appreciative when they were able to meet with the same 21st CCLC staff member over an extended period.** EEO staff reported they could build trust with that person since they had consistent time together. Additionally, it was invaluable for the EEO staff to work with the 21st CCLC staff who had knowledge of the site and to know whom to connect with so that activities, such as environmental action projects, could be physically constructed at the site.

### 3. Flexibility

Flexibility with the program plan (e.g., repeating activities when attendance was low or shortening activities when fewer youth attended than anticipated) was important so that EEO and 21st CCLC staff could adapt activities to meet the needs of the site. Additionally, having an **on-the-fly flexibility to adjust activities was key to working nimbly with 21st CCLC sites**. 21st CCLC staff highlighted that EEO flexibility around logistics, such as busing, was especially necessary for an afterschool environment that is regularly in flux. EEOs and 21st CCLC staff reported that trust between the two groups enabled greater flexibility.

# 4. Grantee Partnerships

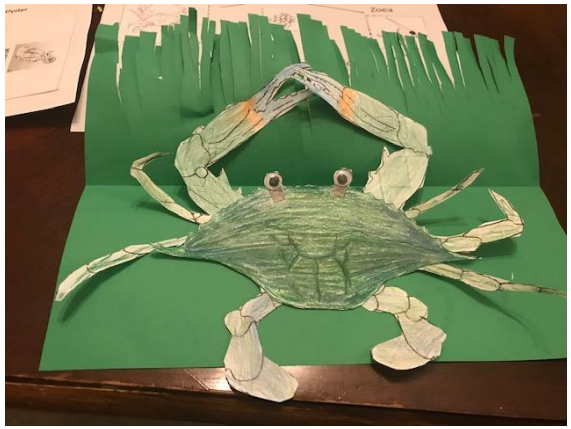
## Five key characteristics of promising partnerships (continued):

### 4. Agreement on purpose and value of the MWEE Program

When the 21st CCLC staff were on board with the intention and the value of the program, EEO and 21st CCLC staff could better integrate the program at the site. **Ensuring there are key staff who recognize the value of the program,** especially when others do not agree, can sustain such relationships. 21st CCLC staff felt like elements supporting the longevity of these partnerships included communicating to other staff about this work.

### 5. Knowledge about staff and sites

When EEO staff knew the important key contacts at 21st CCLC sites, they were able to move programming forward. Especially at the beginning of partnerships, **EEO staff didn't know which 21st CCLC site staff were most important to connect with for their program and which staff "pulled the strings" at sites.** 21st CCLC sites acknowledged the difficulty in bridging connections between the EEO and the school (when the 21st CCLC site was within a school), especially when approval was needed from the principal of the school for some activities, such as constructing a school garden.



> **"I think oftentimes, we come into these partnerships, and we're like, oh, here is what we have to offer you. Are you in, or are you out?**
>
> And for us to take the time—and mainly because it was requested that we do this in the grant—that we take the time to have a formal meeting and to get their feedback on what they want from programs... I think [that's] what made for a more successful program.
>
> *—EEO Staff*

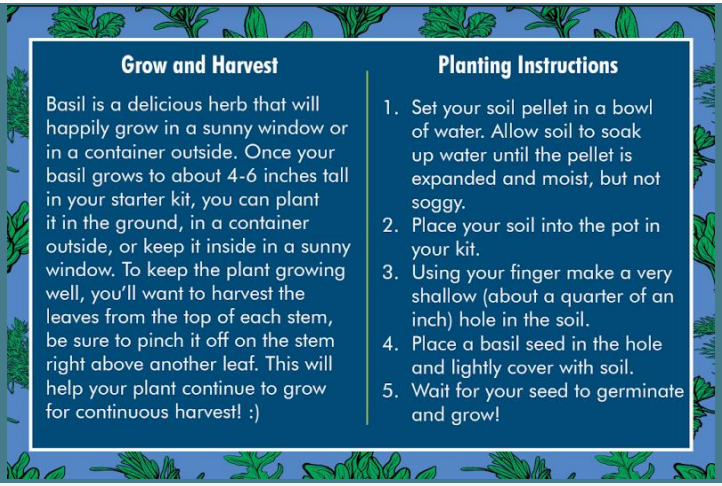
# 4. Grantee Partnerships

## EEO and 21st CCLC staff described barriers and complexities of partnership development that were exacerbated by the COVID-19 pandemic.

Key complexities experienced in the OST environment included inconsistent attendance, staff turnover, and multiple staff roles. The COVID-19 pandemic exacerbated these challenges, putting further strain on EEO and 21st CCLC staff as they sought to plan, communicate, and implement the program together.

### The pandemic created a cascade of challenges that partnerships felt:

- Program design in a virtual environment
- Youth burnout from virtual learning
- Transportation
- Inconsistent student attendance and low attendance
- 21st CCLC staff burnout
- Difficulty coordinating how to spend grant funds




> "What we had envisioned with the partnership was that there would be us, a person who was handling science for the afterschool program…**But with COVID, everything really contracted**. They couldn't get the helpers that they used to get from different places. And really, during the remote part of COVID, [one staff member] was the only one in there with them.
>
> *—EEO Staff*

# 4. Grantee Partnerships

## 21st CCLC sites operated differently and therefore EEOs had to adopt different approaches to working with each 21st CCLC partner and its sites.

EEO staff described needing to modify their approach to communication in order to work with each 21st CCLC partner and, in some cases, each of its sites. EEO staff also adjusted their work with 21st CCLC sites based on each site's capacity and available resources, particularly during COVID-19.

| | |
|---|---|
| **Communication and site-specific needs** | Staff among the 21st CCLC sites that EEOs worked with communicated differently and had different needs. Some 21st CCLC sites wanted to meet in-person weekly, and others wanted to meet rarely. Additionally, sites had different COVID-19 protocols and requests for what they wanted ahead of the EEO staff arrival (e.g., sharing lesson plans in advance). |
| **Site capacity** | 21st CCLC sites differed in their levels of interest in the program itself and the content, in staff knowledge of the sites, in the resources available at sites for programming purposes, and in staff experience implementing afterschool programs. Additionally, some 21st CCLC staff were well established within their site and knew many people, while staff at other sites were not as well connected. For example, when a 21st CCLC site was situated at a school, staff might be more integrated at the location than staff elsewhere. |
| **Resources** | While some sites were similar in the population of youth served and the functioning of a site (e.g., 21st CCLC sites held at schools or Boys and Girls Clubs), the availability of resources across sites varied. For example, one school-based 21st CCLC site might have a stream behind its building so youth could easily visit it. But other schools would need to transport youth to a stream or a river, requiring a different approach to managing the logistics and time allotted for activities. |

# 4. Grantee Partnerships

## 21st CCLC site staff, including administrators and coordinators, considered EEO staff the content and facilitation experts.

As 21st CCLC staff did not typically have the flexibility, capacity, or the time to plan and develop activities, EEO staff took the role of lead program developer and facilitator and were typically given authority to implement activities they developed or curated.

> "[The program] didn't require anything from us except for giving [EEOs] the time and space. And so, to be able to have **a rich activity for our students to do that didn't require any additional work from us** is amazing.
>
> *—21st CCLC Staff*

## 21st CCLC staff bridged the gap between EEO staff and youth, as 21st CCLC staff had existing relationships with youth.

EEO staff were external to the 21st CCLC site, and many had not previously worked with their 21st CCLC sites. Some EEO staff were new to working in afterschool programs in general. Therefore, it was important for EEOs and 21st CCLC sites to be on the same page and for 21st CCLC staff to be aware of the programming EEO staff were planning to ensure that it resonated with youth. 21st CCLC staff had expertise to share, such as their knowledge of the youth, youths' culture and background, the best ways to recruit youth, scheduling, and information about logistics.

When EEOs were less integrated, their role took on a standalone and "one-off" feel, and 21st CCLC site staff indicated they would have liked EEOs to have had more time with the youth. While 21st CCLC site staff participated less in program planning, this may have been partly due to the COVID-19 pandemic stretching OST educators time and capacity.

> "**Because it felt like we just came in and delivered** … that it was just like okay, you come in, teach your lesson, and then that's it versus having things integrated or anything like that.
>
> *—EEO Staff*

# 4. Grantee Partnerships

## Partnerships showed promise for continuing beyond the grant, but barriers to continuing partnerships reflected the challenges EEO staff faced working with 21st CCLC sites.

Partnerships seemed likely to continue because 21st CCLC staff indicated they valued the expertise that EEO staff shared. They also saw value in environmental education programming for their youth because they saw it as a relevant and timely topic. Additionally, 21st CCLC staff thought EEOs shared key science expertise, particularly in rural areas. In one example, a 21st CCLC staff member from a rural area mentioned that they do not have many science expert professionals in their community.

### Ideas for how partnerships might continue include:

- Continue to offer more of the same type of programming as this program
- Organize field trips to EEO sites
- Host short-term projects that EEO staff facilitate
- Have EEO staff develop activities that 21st CCLC staff could do on their own

**98%** of 21st CCLC staff respondents indicated that they would likely continue implementing environmental education programming at their site.

**71%** of 21st CCLC staff respondents indicated that their 21st CCLC site is highly likely to pursue future partnership opportunities with an EEO.

**67%** of EEO staff respondents indicated that their organization is highly likely to pursue future partnership opportunities with a 21st CCLC site.

# 4. Grantee Partnerships

## Five potential barriers to sustaining partnerships:

### 1. Staff turnover

EEO and 21st CCLC staff recognized the high turnover of 21st CCLC staff, pandemic or not. Throughout the program, 21st CCLC staff left their positions (e.g., were promoted or left their job). When new staff started, EEOs had to rebuild relationships, which resulted in disjointed communication and complicated efforts to embed the program within the 21st CCLC site. Turnover also may have decreased or eliminated chances of the partnership continuing if other staff were not passionate about the work or were unable to continue it.

### 2. Limited 21st CCLC time and capacity

21st CCLC staff have limited time, and as a result, they were not always able to spend time planning and coordinating with EEO staff. Additionally, 21st CCLC site staff wear multiple hats (e.g., a site coordinator might also be an educator). Even if a 21st CCLC site staff had one role (e.g., a site director), they were often pulled in multiple directions, particularly during the pandemic. When 21st CCLC staff were unable to give sufficient time to working with EEOs, this resulted in EEOs feeling like they were on their own to implement.

### 3. Lack of funding

In some cases, 21st CCLC sites were losing their grant funding, which meant that the EEO could not continue partnering with the site as a 21st CCLC grantee. Lack of funding was also a barrier. EEO staff might want to continue the partnership, but they would be unable to without funding for their staff.

### 4. Poor communication

EEO and 21st CCLC staff typically overcame issues related to communication. However, in a few instances, these challenges persisted and became a barrier to EEO staff wanting to continue working with 21st CCLC sites.

### 5. Geographic distance

Given the distance of some of the 21st CCLC sites to the EEO, continuing the partnership did not seem feasible.

# 5. Grant Oversight and Community: Key Findings

Grantees valued:

- The flexibility of the grant and the feeling of trust and support from NAAEE and NOAA to adjust as needed
- The community of practice with other grantees

# 5. Grant Oversight and Community

## Grantees appreciated trust, flexibility, clarity, and support from grant staff, particularly during the COVID-19 pandemic.

While not an original focus of the evaluation, trust and flexibility emerged as common themes from EEOs. EEOs also valued having clear expectations around grant implementation requirements and the freedom to adapt as needed. For example, due to the COVID-19 pandemic, delayed program implementation meant that EEOs were not typically able to spend funding as planned. They appreciated the ability to shift their budgets to accommodate what activities they were able to complete. EEOs also thought that the reporting process was at the right level, particularly with strained EEO staff capacity during the pandemic. Finally, grantees appreciated the individualized support and encouragement they received from their NAAEE point of contact.

## EEOs valued the Coffee Chats as a place to connect as a grantee community.

EEO staff benefited from participating in regular Coffee Chats, facilitated and led by NAAEE. Coffee Chats gave EEO staff the opportunity to:

- Discuss challenges and successes
- Troubleshoot issues
- Learn about programming ideas
- Share resources
- Receive support during the pandemic when EEO staff were struggling with how to move forward with the program

> "I think they did a good job about **being clear on expectations, and I did appreciate their ability to be flexible** and being able to move some things around in our budget because of the unusual circumstances we had and how we had to change formats of the program.
>
> *—EEO Staff*

> "But I think one of the main good things and benefits is the hearing from and networking with the other groups that are also doing the grant. So like ways of incorporating that into the future, I think is **really valuable to be able to get ideas, bounce ideas off of other people doing similar things.**
>
> *—EEO Staff*

# Implications for Future Programs

This evaluation offers insight into the efforts EEOs and 21st CCLC took to modify MWEEs for the OST context and what was learned from EEOs and 21st CCLCs working together since 2020.

Given the data collected and findings shared above, we provide areas of consideration for NOAA, NAAEE, ED, and their stakeholders.

# Implications for Future Programs

Based on the data collected, we offer the following four considerations and related reflection questions for NAAEE, NOAA, ED, and their stakeholders.

## 1. MWEE Implementation

**Given the realities of the OST context, further discussion and guidance is needed to define what a "successful" MWEE in OST entails and if the MWEE framework fits the OST space.**

Formal K–12 settings operate with a different set of assumptions from the range of OST settings seen in this grant program, such as consistent attendance, expectations of the types of activities youth expect to do during "school," and consistent number of minutes for program activities. Therefore, implementing a MWEE in an OST program versus a formal K–12 space requires different framing, approaches, and outcomes.

MWEEs, as designed and defined, are challenging to implement in OST because of the variables and contextual factors of the OST environment (e.g., inconsistent youth attendance, limited time for activities). Additionally, youth disengaged when MWEEs in their OST programs were school-like in nature. MWEEs in OST resonated most when activities were perceived as fun and were hands-on, outdoors, and connected to their local environment.

As a result, MWEEs in OST could be approached with an emphasis on the most engaging aspects of the framework (i.e., hands-on explorations, outdoors or nature-based field experiences, youth-led activities) and de-emphasize the style of learning that youth encounter in school. As a result, aspects of MWEEs such as in-depth synthesis and reflection and long-term, youth-led action projects should be reconceptualized to better resonate with youth.

**Questions for further consideration and discussion:**

- What is reasonable to expect a MWEE to look like in an OST setting?
- How can grantees build in more youth voice and reflection into their OST programs in ways that will engage youth?
- What types of environmental action projects are feasible with the time and resources available in OST settings?

# Implications for Future Programs

## 2. EEO Capacity Building

**EEOs need further support and capacity building to understand the opportunities and complexities of the OST context, and specifically the 21st CCLC context.**

Implementing environmental education in a 21st CCLC context is complex. EEO staff engage in environmental education, but not all facilitate activities regularly in the OST context. As our findings indicate, while the philosophy of many EEOs align with the MWEE framework, EEOs are not always familiar with the OST context, and specifically with the 21st CCLC context.

In the future, NOAA or NAAEE could offer prospective EEO partners a space to discuss the realities of the 21st CCLC context prior to grant funding. Such conversations may help EEOs better understand OST and the 21st CCLC program and what can be accomplished within that context, while still ensuring youth are able to engage in outdoor, hands-on activities that center on the youths' local environments and interests. Additionally, EEOs could be better prepared by setting aside time and resources to work with each individual 21st CCLC partner and each site, as a program for one 21st CCLC site may not fit well at another 21st CCLC site.

**Questions for further consideration and discussion:**

- What additional supports could NOAA and NAAEE provide for EEOs in partnering with OST sites, particularly 21st CCLCs? When and in what ways can those supports be delivered?
- What guidelines or recommendations should be in place for the ways in which EEOs partner with 21st CCLCs (e.g., number of partners, capacity of 21st CCLC sites)?

# Implications for Future Programs

## 3. Collaborative Planning and Partnerships

### EEOs and 21st CCLCs should collaboratively develop partnerships and design programming.

EEOs should engage 21st CCLC staff early on to discuss ideas for the program, receive input from 21st CCLC staff about what is feasible at their site and what resources they have available, and discuss scheduling. This co-development and involvement of 21st CCLC staff at multiple levels would help build buy-in and work toward integrating EEOs so their activities don't feel like a "one-off" program.

Additionally, engaging 21st CCLC site leadership to understand and see the value in the program goals would enable them to better support the program and communicate about it to parents and others at the site. Further, EEO and 21st CCLC site staff should be encouraged to think "outside of the box" for what might be possible to implement (e.g., staff should not be afraid to investigate the feasibility of field trips).

Collectively, these strategies will help build a program that is mutually beneficial as well as grow strong partnerships.

**Questions for further consideration and discussion:**

- How can the roles of EEO and 21st CCLC partners be clearly defined yet remain flexible to address varying degrees of capacity?
- What resources or supports could be offered to help build buy-in at all levels of 21st CCLCs?

# Implications for Future Programs

## 4. Sustainability and 21st CCLC Staff Capacity

**Future grants would benefit from a clear articulation of 21st staff CCLC roles, particularly related to capacity building and facilitation, and an agreed-upon vision for sustainability.**

Environmental education offers valuable learning opportunities for youth in OST (e.g., field trips, content expertise provided by EEOs) and data from this evaluation demonstrate that 21st CCLC staff are generally interested in youth exposure to environmental education programming. 21st CCLC staff played a vital role in the implementation of this program because of their knowledge of their sites and youth, their understanding of how to navigate their sites, and their connections to their local context and cultural communities.

Yet, 21st CCLC staff and site capacity to organize and facilitate MWEEs on their own vary greatly. It is unclear whether PD opportunities provided by EEOs would be sufficient training for 21st CCLC staff to implement MWEEs on their own, or if the goal is for 21st CCLC sites to be able to implement without the expertise of an EEO partner. Also, it is uncertain whether training 21st CCLC staff is wanted or feasible given limited 21st CCLC staff capacity, or beneficial to long-term sustainability due to high staff turnover at some 21st CCLC sites.

**Questions for further consideration and discussion:**

- What types of staff capacity building make sense in the 21st CCLC context?
- What does program sustainability look like in the 21st CCLC context? What can be done to help promote sustainability?