

# NOAA Environmental Literacy Program 2021 Resilience Education Grantee Workshop

Report of a Workshop Convened by the NOAA Office of Education  
May 25 through May 27, 2021  
Virtual



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## **Introduction**

### **Acknowledgements**

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### **Background**

From May 25-27, 2021, NOAA's Office of Education held the third Environmental Literacy Program Resilience Education Grantee Workshop. Due to the ongoing impacts of the COVID-19 pandemic, this was the first time that the event was held virtually. This workshop convened the recipients of the grants awarded from 2015-2021 through the Environmental Literacy Program (ELP) community resilience-focused grant competitions. These grants aim to foster the environmental literacy necessary in the communities they serve to contribute to resilience to extreme weather events and other environmental hazards. This workshop built on findings from

the [2017 workshop](#) held at the Museum of Science, Boston and the [2019 workshop](#) held at the NOAA Science Center in Silver Spring, Maryland.

ELP supports projects that both inspire and educate people to use Earth system science to increase ecosystem stewardship and resilience to extreme weather events and other environmental hazards ([NOAA Education Strategic Plan](#), 2021-2040). Since ELP's inception in 2005, the grants offered through this program have supported both formal (K-12) and informal education initiatives that serve NOAA's mission of science, service, and stewardship. This mission is directed toward a vision of the future where communities and their ecosystems are healthy and resilient in the face of sudden or prolonged change (ELG Federal Funding Opportunity, 2019). As outlined in NOAA's Education Strategic Plan, individuals should be equipped with the capacity to comprehend NOAA-related science and their implications for current and future events as well as have the tools to effectively respond in the face of increasing challenges and impacts of hazardous weather, changes in climate, and other environmental threats (2021-2040). This reasoning lays the foundation for the critical role that education plays to achieve NOAA's mission.

In 2015, the focus of ELP shifted from funding primarily climate change literacy projects to funding projects focused on community resilience. This shift reflected the need to generate a solutions-oriented model for educating, engaging, and empowering communities to mobilize and adapt to climate and other environmental hazards. Since this shift, ELP has funded [30 community resilience education projects](#) across the United States and its territories, with projects ranging in scale, geographic scope, and duration of funding. All of these projects utilize [NOAA's Resilience Assets](#), which are physical and intellectual resources that can support community resilience and climate change education. The [U.S. Climate Resilience Toolkit](#) is one asset in particular that grant projects find useful, as it offers a step-by-step framework for communities to explore the hazards they face, assess their specific vulnerabilities and risks, consider options, prioritize and plan, and finally take action (U.S. Climate Resilience Toolkit).

A primary goal of this workshop was to reconvene the group of grantees that met at the 2017 and 2019 workshops, and to introduce new grantees into the community of practice of resilience educators and practitioners that ELP supports. This community of practice serves as a catalyst for sharing information on emerging best practices, challenges, and lessons learned about resilience education through each grant project. ELP grantees are all members of the community of practice, and are able to connect with professionals in the many related disciplines that come together to support education for community resilience across the nation.

## Workshop Summary

The objectives of this Resilience Education Grantee Workshop were to (1) create personal and professional bonds across individuals and projects, (2) create a venue for collaboration and information sharing amongst grantees, (3) discuss how to implement and utilize the ELP's Resilience Education Theory of Change, (4) inform the content of the next ELP funding solicitation, and (5) discuss new administration priorities and how they might be implemented through grants. The workshop was attended by 112 participants representing 51 institutions (see Appendix A). Attendees represented a broad suite of organizations working in community resilience education, including universities, tribal colleges, K-12 school districts, museums, aquariums, and other non-profit organizations. The principal investigators, key personnel, and some evaluators attended as well as NOAA personnel from other education and resilience programs. Speakers included select invited experts from NOAA and the Pisces Foundation.

The workshop opened with brief remarks by Louisa Koch, NOAA Director of Education, about the history of the ELP and its Theory of Change and the importance of the work given the increasing number of weather and climate disasters. Karen Hyun, NOAA Chief of Staff, outlined the importance of grantee's work to NOAA's mission and how the work is central to the Biden-Harris Administration's emphasis on addressing climate change in an equitable manner. Throughout the rest of the workshop, ELP grantees shared information on best practices, challenges, and lessons learned about community resilience education. We focused on understanding how grantees are incorporating NOAA's Community Resilience Education Theory of Change into their projects. Additionally, we explored the following topics:

- (1) Systemic implementation of environmental education,
- (2) A national strategy for empowering climate action for the United States,
- (3) Building a future workforce that understands climate resilience and Civilian Climate Corps connections,
- (4) Diversity, equity, inclusion, and justice in community resilience education,
- (5) Mental health and social well-being,
- (6) COVID-19 impacts and moving forward, and
- (7) Evaluating resilience outcomes.

The first two topics were addressed through plenary talks. Jason Morris and Rachel Szczytko from the Pisces Foundation shared how building the field of environmental education helps ensure that all young people gain the environmental literacy they need to build stronger, more equitable communities and foster a sustainable environment. Frank Niepold, the Action for Climate Empowerment National Focal Point for the United States, provided updates on plans to strategically unite education, training, workforce development, public participation, and access to information for rapid climate action. Grantees discussed the remaining five themes in smaller breakout sessions. A full workshop agenda can be found in Appendix B.

Summaries of the plenary sessions as well as the breakout session discussions are included below, followed by the major takeaways and next steps for the ELP resilience education community of practice.

## **Workshop Themes**

### **ELP Theory of Change**

#### **Session Overview**

In order to achieve the workshop objective of discussing how to implement and utilize the ELP's Theory of Change (ToC), workshop participants mapped current and past grantee projects against the ToC. This process allowed participants to identify ways to improve this guiding document. In 2020, the ELP team developed and published the [NOAA's Community Resilience Education Theory of Change](#) to provide a rationale for the program's approach. Unlike a logic model, a theory of change is broad in scope and focuses only on outcomes and goals rather than project-level details. The entire second day of the workshop was dedicated to the ToC, starting with a presentation by Carrie McDougall and Sarah Schoedinger, both Senior Program Managers in NOAA's Office of Education, and then continuing with breakout sessions for the different causal pathways within the ToC.

Carrie McDougall and Sarah Schoedinger reflected on the purpose of the ToC and why it was important to develop this document. The ToC helps grantees understand how their work contributes to broader efforts, allows for aggregation of approaches and outcomes across projects, connects the value of education to building community resilience, and provides a model for how environmental literacy contributes to resilience. When creating the ToC, the ELP team considered how collective environmental literacy is essential. Not all individuals in a community must have the same level of environmental literacy, but there is a level of collectively held environmental literacy necessary for communities to be resilient. Also, cohesive social networks and equity and inclusion must be central to community resilience education. These approaches help to improve policy because policies are more robust when they reflect the values of society. Likewise, framing resilience in a hopeful way inspires more action than fear or hopelessness can. Understanding climate change impacts and thinking about the global scale of the problem can be overwhelming and lead to inaction. Solutions-based approaches with a local, place-based focus can inspire action and hope and are necessary in the community resilience education space. All of these concepts are incorporated into the ToC, a document that is intended to be malleable and will evolve over time.

A theory of change begins with a problem statement and ends with a goal. In between, causal pathways depict the short-, mid-, and long-term outcomes that must be met in order to achieve

the end goal. Based on the approaches and outcomes from the ELP-funded community resilience education projects and assumptions gleaned from a literature review, six causal pathways have been identified that lead to the end goal. The ELP project interventions from each of the six causal pathways are as follows:

- 1) ELP-funded projects collaborate as part of NOAA's ELP community of practice which advances effective community resilience education both in individual projects and collectively through regular collaboration among grantees and sharing of findings within and beyond the community of practice.
- 2) ELP-funded projects support local community resilience efforts by incorporating relevant resilience plans and partnering with resilience practitioners. This leads to government policies and budgets providing resources (e.g., funding, personnel) to implement educational components of resilience efforts.
- 3) ELP-funded projects incorporate scientific and policy information into, and provide active learning (e.g., citizen science, deliberative forums, scenario-based interventions, and participatory decision-making) opportunities to engage community members in civic processes. This leads to resilience policy decisions and implemented preparedness, adaptation, and mitigation strategies that incorporate the values of society, improve community health, and bolster socioeconomic equity.
- 4) ELP-funded projects integrate relevant historical, cultural, local, and traditional knowledge to build social cohesion among community members so that communities are more socially cohesive and implement resilience plans and practices that are more culturally relevant and represent diverse community values.
- 5) ELP-funded projects support the creation and implementation of student-driven resilience action projects so that educators and students have taken actions that reduce their community's vulnerability to the identified environmental hazard(s), making a positive impact on their community and providing a model for other members of their community to follow.
- 6) ELP-funded projects host youth summits and facilitate other youth leadership opportunities so that youth act as agents of change to increase resilience in their communities.

An overview of causal pathways 1 and 2 was provided during the plenary discussion, while causal pathways 3 through 6 were discussed by grantees during breakout groups.

In preparation for the workshop, grantees completed an exercise to map their own projects onto the ToC. Grantees considered which causal pathways their projects will or did advance and the extent to which their project had an effect on each outcome statement within the relevant causal pathways. Twenty-eight projects completed the exercise and in aggregate, the projects were advancing all six causal pathways. Based on this preliminary data collection captured prior to the workshop, the most grantees indicated that their projects advance causal pathway 2, while the fewest grantees indicated that their projects advance causal pathway 6 (see Table 1 for



percentages). Program officers were not surprised by this result because within causal pathway 2, there are outcomes related to being informed by and influencing resilience plans and planners, which all ELP projects must do to be funded, while causal pathway 6 is a more specialty-focused causal pathway.

Table 1. Preliminary percentages of respondents who answered "No", "Maybe", or "Yes" to the question: Which causal pathway(s) did or will your project advance?

<b>Causal Pathway</b>	<b>Percent (No)</b>	<b>Percent (Maybe)</b>	<b>Percent (Yes)</b>
Causal Pathway No. 1	15%	15%	70%
Causal Pathway No. 2	7%	19%	74%
Causal Pathway No. 3	15%	19%	67%
Causal Pathway No. 4	15%	15%	69%
Causal Pathway No. 5	15%	11%	74%
Causal Pathway No. 6	27%	15%	58%

In general, the grantees reported that their efforts are having a greater effect on the outcomes in causal pathways 1, 2, and 6 (see Table 2). Even though the fewest number of grantees are addressing causal pathway 6, those that are addressing that pathway are doing so to a relatively high extent. More grantees report an effect of their work in the short-term outcomes more so than the mid- and long-term outcomes, as mid- to long-term outcomes are unlikely to be seen for three or more years. Within each causal pathway, we also asked grantees to indicate the extent of their project’s effect on that pathway (see Table 3).

Table 2. Preliminary results showing the average short-, mid-, and long-term effect for each causal pathway. Grantees self-assessed the extent to which they thought that their project had an effect on each causal pathway, where 0=unsure, 1=no effect, 2=minor effect, 3=moderate effect, and 4=major effect. This came as a response to the question: To what extent did/will your project have an effect on each causal pathway’s outcome statements?

	<b>Causal Pathway No. 1</b>	<b>Causal Pathway No. 2</b>	<b>Causal Pathway No. 3</b>	<b>Causal Pathway No. 4</b>	<b>Causal Pathway No. 5</b>	<b>Causal Pathway No. 6</b>
Short-term Effect (avg.)	2.72	3.12	2.28	2.07	2.72	2.78
Mid-term Effect (avg.)	2.45	2.94	2.48	1.87	1.87	2.60
Long-term Effect (avg.)	2.38	2.10	2.02	1.88	2.04	2.22

Table 3. Preliminary results for the average percentage of grantees within each causal pathway who reported that their work has no effect on advancing the causal pathway; they are unsure of their project’s effect on the pathway; or it has a minor, moderate, or major effect on the pathway.

	<b>Causal Pathway No. 1</b>	<b>Causal Pathway No. 2</b>	<b>Causal Pathway No. 3</b>	<b>Causal Pathway No. 4</b>	<b>Causal Pathway No. 5</b>	<b>Causal Pathway No. 6</b>
No Effect (Effect % avg.)	8.1%	6.6%	16.1%	25.6%	19.5%	11.2%
Unsure (Effect % avg.)	16.8%	14.0%	11.9%	13.0%	14.6%	11.6%
Minor (Effect % avg.)	16.2%	11.2%	23.9%	21.4%	16.4%	19.6%
Moderate (Effect % avg.)	33.5%	37.2%	26.1%	22.5%	24.7%	27.8%
Major (Effect % avg.)	25.4%	31.0%	21.9%	17.5%	24.8%	29.7%

The NOAA ELP team will use the information from the mapping exercise in aggregate to understand the areas within the ToC where there is the most activity and where there is the least, and how this changes over time as the program evolves. This information will also help to inform future funding solicitations and identify gaps or missing concepts that may be addressed in future revisions. Updated results from this exercise will be posted on the [ELP Impacts webpage](#).

After hearing an overview of the ToC and seeing some preliminary results from the ToC mapping exercise, the grantees were divided into breakout groups to discuss causal pathways 3 through 6 in more detail.

**Causal Pathway 3: Active Learning Enables Community Engagement in Civic Processes**

**Intervention:** ELP-funded projects incorporate scientific and policy information into, and provide active learning (e.g., citizen science, deliberative forums, scenario-based interventions, and participatory decision-making) opportunities to engage community members in civic processes. This leads to resilience policy decisions and implemented preparedness, adaptation, and mitigation strategies that incorporate the values of society, improve community health, and bolster socioeconomic equity.

Grantees discussed a wide variety of activities to accomplish the outcomes of Causal Pathway 3. Most of these efforts focused on either community or student engagement. Community forums were an opportunity to receive feedback from community members before taking action. In particular, conversations focused on citizen science work, and some projects paired citizen science with community forums at different sites. Traveling museum exhibits and story maps were also an important way to engage both community members and students. Several projects

utilized direct engagement between students and decision-making officials. This helped connect the students to government action plans, as well as provided them a forum to provide feedback. Grantees also have developed curriculum for students to work with resilience plans and provided teacher training for these efforts. Other school-based activities, including rain gardens and art projects, have provided additional outlets for active learning. Active learning is defined as a process whereby learners engage in activities, such as reading, writing, discussion, or problem solving that promote analysis, synthesis, and evaluation of information. Cooperative learning, problem-based learning, and the use of case methods and simulations are some approaches that promote active learning (Adapted from <http://www.crlt.umich.edu/tstrategies/tsal>). Many grantees agreed that engagement at multiple timepoints is critical for this pathway. The projects strive to move community members and students from awareness to action, which requires partnerships and co-production of culturally responsive learning opportunities and monitoring experiences. Creating these partnerships early is critical to success.

Many grantees incorporated work related to Causal Pathway 3 as a central component of their projects, but the pathway also posed some challenges. In the past year, it was, in many cases, difficult to translate work in this pathway into the virtual space. There was also a call for broadening the audience of the pathway beyond the public to also explicitly include community leaders and resilience planners. Likewise, projects need to focus on more than just resilience planning and also include influence on broader civic processes. However, sometimes it was difficult to differentiate “civic processes” and advocacy. Others reported that many communities do not have a resilience plan in place, or if they do, it does not adequately incorporate relevant cultural perspectives and resilience practices. These were the most commonly cited challenges the grantees reported within this causal pathway.

#### **Causal Pathway 4: Understanding Cultural and Historical Context of Place Builds Social Cohesion**

**Intervention:** ELP-funded projects integrate relevant historical, cultural, local, and traditional knowledge to build social cohesion among community members so that communities are more socially cohesive and implement resilience plans and practices that are more culturally relevant and represent diverse community values.

Many grantees prioritized incorporation of different forms of knowledge into their projects. For example, students may interview community members, especially those from older generations, to hear about their experiences with hurricanes and sea level rise and to increase intergenerational learning. Projects may also work to include cultural, historical, local, and traditional knowledge into school curriculums. Partnerships with community organizations are critical for this pathway so that relevant forms of knowledge are included. There was also consensus that some communities already do incorporate different ways of knowing into

resilience work, so it is important for grantees to learn what work already occurs in project locations.

Working on outcomes in this pathway is not without challenges. Grantees discussed that some cultural practices align with resilience practices, but many of NOAA's data tools are western-knowledge focused and do not include cultural resources for indigenous or immigrant communities. In addition, some grantees faced challenges doing this type of work when efforts to focus on underserved places backfire. As a community becomes more resilient, it becomes a more attractive place to live, which can increase property values and push out current residents. Further, grant recipients whose projects occurred prior to the creation of the ToC tended to address this pathway to a lesser extent than more recent grantees. Whereas the grantees that received a second award increased emphasis on this pathway. This pathway is foundational for many newer projects, which can make it easier to structure a project to intentionally address long-term outcomes of the pathway.

#### **Causal Pathway 5: Student-driven Action Projects Implement Resilience Measures**

**Intervention:** ELP-funded projects support the creation and implementation of student-driven resilience action projects so that educators and students have taken actions that reduce their community's vulnerability to the identified environmental hazard(s), making a positive impact on their community and providing a model for other members of their community to follow.

Many grantees mentioned that their projects focus on student-driven resilience action projects, or Causal Pathway 5. For example, in one project, students worked to redesign their school building to increase its resilience to hazards. Both educators and students participated in this active learning, even sometimes expanding the project to engage the broader community. There was a consensus the pathway should expand to include youth-to-youth peer education and teacher capacity growth. It was unclear if the audience of the pathway was educators, students, or both, and if it only includes formal K-12 educational settings. The grantees also described the challenges associated with mid- and long-term outcomes for this pathway because it is hard to anticipate student interests when designing a project and because the compound nature of the outcomes as currently written, where projects may be seeing partial effects, but their project outcomes are not a complete match with the causal pathway outcome.

In addition to confusion about the intended audience of this pathway, the grantees also described aspects of the pathway that they felt were missing, including explicit incorporation of environmental justice and the problems created by our history of systemic racism. They also questioned how industry partners might fit into this space. Bottom-up interventions, especially those that include environmental justice organizations, could help to ground work done to

achieve outcomes in this pathway more firmly in the community and more closely align with local needs.

### **Causal Pathway 6: Youth Summits Empower Agents of Change**

**Intervention:** ELP-funded projects host youth summits and facilitate other youth leadership opportunities so that youth act as agents of change to increase resilience in their communities.

Many grantees enthusiastically shared the work of their projects in the youth summit and youth leadership development spaces. The projects incorporate youth-led initiatives and programs and other leadership experiences through vehicles such as youth ambassador programs, summits, and institutes. Some projects also considered youth-led action projects as furthering youth leadership development. Many of these efforts were particularly powerful because the youth could make decisions about the ways they engage with climate resilience topics. Some grantees classified all of their youth efforts under this pathway, while others thought that some student efforts were also relevant to Causal Pathway 5.

There were questions about whether student action projects should “count” in Causal Pathway 5 or 6. And, the grantees mentioned the limitation of the terms “youth” and “summit”. Several in the breakout rooms expressed confusion about whether this pathway could incorporate other youth leadership experiences that are not necessarily part of a youth summit program. Also, some projects only work with youth and not with their teachers, so the outcomes that involved teachers and youth were not able to be addressed even if the project was achieving the outcome only with their youth participants. Some also pushed against limiting this pathway to only youth and instead broadening it to allow grantees to specify their own primary audience for summit or other leadership experiences. There was also variability reported in how grantees defined “youth”. Some defined it as specifically K-12 and others defined it more broadly (note the definition of youth in the theory of change is persons between the ages of 15 and 24 years old; United Nations 2021). Finally, some grantees reported that it was difficult to control the diversity of youth who engage with their projects because they typically recruit teachers who then find students who are interested and so the grantee does not control the selection of the youth getting involved.

### **Feedback on the Theory of Change**

Most grantees reported that the ToC provides a useful framework for their project and that having an opportunity to map their projects onto the ToC was a useful exercise. Having such a clear framework for the ELP was applauded as a model for other federal programs. Grantees also mentioned their appreciation of the inclusion of specific pathways, especially Causal Pathway 4,

because it indicates a recognition that top-down approaches that are not culturally sensitive are ineffective at creating equitable community resilience. Recognizing that community resilience education is an evolving field, and that the ToC will change as the field changes, the grantees also felt that they needed to iteratively map their projects to the ToC as intended and unintended outcomes occur.

Throughout the breakout room discussions, the grantees identified a few places in the ToC that consistently caused confusion. Many of the outcome statements are compound sentences and therefore double-barrelled, but many grantees only incorporated one part of those statements into their projects. The outcome statements are also static while the work is dynamic, and the timescale of short-, mid-, and long-term outcomes was unclear. Likewise, they requested increased clarity of definitions in the ToC, whether NOAA's ELP team provides definitions or the grantees provide their own. Many of the pathways overlap in different ways, but this makes it challenging for projects to identify where they are addressing the ToC.

### **Feedback on Evaluation**

The breakout rooms on the ToC also served as a reminder that ELP grant projects engage in many of the same evaluation methodologies. Surveys of project participants or community members, especially pre/post surveys or retrospective pre/post surveys, are used to capture changes over time. Interviews are another common methodology used that can take multiple forms, including oral history interviews. Engaging community members and students in collecting data for evaluation purposes and providing them with a space for reflections were other strategies that allowed for more meaningful engagement. With these evaluation strategies, there was a widespread concern about over-surveying community members and also about the reliability of some of the data when a project is not designed to allow for continuous engagement with the same people. For some outcomes, there was confusion about how to effectively measure qualitative concepts (e.g., hope, empathy) and how to report unintended outcomes that do not fit well within the ToC. Grantees also discussed the tradeoffs they faced when designing their evaluation plans on a limited budget between the strength of evidence and the quantity of metrics measured versus capturing action.

### **Other Topics Discussed Relevant to Community Resilience Education**

In addition to the conversations on the ToC, on the third day of the workshop, participants separated into breakout rooms to discuss several other pertinent topics. The four topics discussed in the rooms were chosen as they help address our workshop objectives and are reflective of priorities that emerged at the last workshop as well as current issues.

1. Since the last workshop in 2019, a new resilience metrics toolkit was published, which is an important new resource for all working in the field of resilience. Therefore, one set of rooms discussed evaluating resilience outcomes and served as an important extension of the ToC conversations held on the second day of the workshop.
2. The events of 2020 put a spotlight on diversity, equity, inclusion and justice issues, and having conversations about these topics is critical for resilience work. A second set of breakout rooms discussed these important issues which are an Administration priority, a NOAA priority, and a priority that emerged from the 2019 grantee workshop.
3. The ELP team also heard from participants at the 2019 workshop about the importance of discussing mental health and social well-being of project participants and staff, so a third set of rooms tackled this topic.
4. Finally, we have all dealt with the ongoing impacts of the COVID-19 pandemic. Many of these impacts are negative and have caused great stress, but there are also new opportunities emerging that were discussed in a fourth set of rooms.

## **Evaluating Resilience Outcomes**

There are many ways to consider measuring and evaluating individual and community resilience to extreme weather and climate change impacts (e.g., see [Resilience Metrics Toolkit](#)). Because community resilience education focuses on social-ecological resilience, projects can choose to measure impacts on social aspects (e.g., social learning, social cohesion, individual choices, policy changes) and/or ecological aspects (e.g., acres of rainwater gardens installed, reduced carbon footprint, acres of shoreline restored, reduction in size of urban heat islands). While ELP-funded projects are primarily focused on learning outcomes, they also could evaluate outcomes related to policy changes and implementation of policy goals at the community level. These breakout sessions explored the ways in which grant projects may already be collecting information on how their projects are influencing policy and/or policy implementation at the school, municipal, or state level.

During these breakout sessions, participants discussed the ways that ELP projects influence policy and the challenges of doing this sort of work. Many projects establish partnerships with policymakers to work on climate action plans, and a few help foster relationships between indigenous communities and those in decision-making positions. Policymakers sometimes have also engaged with students to discuss their work, such as student-led initiatives that connect climate action plans to the local community. Interactions between policymakers, students, and community members allow for dialogue that can foster an understanding of what the community needs as well as areas where policymakers may need help. These efforts have resulted in some promising outcomes, in some cases adding direct funding lines to state budgets and connecting planning and sustainability professionals.

While a lot of progress is possible via interactions with policymakers, getting access to policymakers in the first place is a serious challenge. During the breakout sessions, one of the major struggles expressed was finding people who can provide access to policymakers in a timely manner. However, once a relationship is formed, many reported that the policymakers appreciated engagement with grantees and community members because it ultimately helps them achieve their goals. This is particularly true when children or youth are the ones engaging with policymakers, as younger constituents talking to decision-makers often results in more impactful engagement than adults. All of the efforts with policymakers are challenging to evaluate, and it is rare to get quantitative feedback from policymakers to include in evaluation reporting. Earlier incorporation of evaluation of policymakers into ELP projects can help to strengthen the reporting on related outcomes.

### **Diversity, Equity, Inclusion, and Justice (DEIJ)**

[Damage](#) from weather and climate disasters and susceptibility to pandemics have increased dramatically, and communities of color and poverty are bearing a disproportionate share of the burden. Only when existing inequities and imbalances of power are addressed will communities truly be resilient. As stated in the ToC, equity and inclusion must be central to community resilience education. As communities understand how human and natural systems interact, it is essential that they also understand how vulnerabilities to environmental hazards are disproportionately distributed, and take approaches to address existing inequities.

These breakout groups provided a space for discussion of the project's current DEIJ efforts and the challenges and barriers to addressing inequities. Many projects partner with community-based organizations that have a focus on cultural and/or environmental justice to help develop and implement ELP projects. Breakout room participants described how establishing partnerships with these types of organizations from the beginning of the grant made the work much easier. Engagement with organizations and community members through co-production approaches improves the power dynamics between the grantee team and the community they serve. Participants in these breakout rooms also discussed the importance of having diverse representation on the grantee project leadership team and to include members of the communities served by the grant. The grantees felt they were successful when they had a strong place-based focus that values forms of local knowledge.

While the projects continue to make progress towards addressing inequities, there are many challenges that make DEIJ work difficult. Discussions in the breakout rooms noted the difficulty of addressing the needs of the most vulnerable in a community because of barriers to participation that those community members face. For example, in order to participate in co-



production of community resilience plans, community members need to receive payment for their time and have access to transportation and child care. Further, sensitivity to the financial aspects of what a project is recommending participants do is important. For example, recommending people stock up on food and water supplies as a best practice may not be feasible for people with limited financial assets. In addition, there are challenges getting access to the most vulnerable community members because they often distrust outsiders. This reiterates the importance of having local community members as part of the grantee leadership team and working with locally based organizations. Grantees indicated that the goals of ELP are more progressive than many of the institutions that grantees work for or partner with (e.g., museums). Some of these organizations do not prioritize DEIJ efforts. This, along with operating in a constrictive system of being dependent on grant money and ensuring deliverables, can make it hard to innovate and be flexible. The breakout room participants felt that conversations about DEIJ need to go beyond race. Additionally, they called for NOAA to ensure that black, indigenous, and other people of color (BIPOC) organizations receive funding. Ultimately, empowering community members to take resilience actions is a great first step, but it does not necessarily build their capacity to secure and manage grants to create stable funding streams in the long-term.

### **Mental Health / Social Well-being**

One of the challenges of teaching and learning about climate change is that the more one understands the magnitude of the impacts and the complexity of the problem, the more likely one is to feel hopeless, anxious, and unmotivated to take action. Also, communities that have experienced disasters may have ongoing trauma that can limit their ability to be resilient. Therefore, community resilience education must recognize existing traumas and inspire hope by focusing on climate solutions and empowering program participants to help develop and support the implementation of those solutions ([ToC](#) p. 19).

These breakout groups tackled this subject matter and described how grantee projects currently incorporate mental health considerations. Multiple projects created space for students to explain the trauma associated with natural hazards, such as through art, journaling, and storytelling. Developing and sharing personal climate stories also provided students with opportunities to learn listening and empathy skills. Grantees also mentioned bringing mental health professionals to schools and community events to share resources and strategies for alleviating stress. These resources are also important for teachers and staff members so that they have a support system and training to deal with trauma. Breakout session participants stressed the importance of reframing resilience work so that it is more hopeful and solutions-oriented and that it equips participants with tools to take ownership of locally relevant solutions. Mental health and social well-being overlap with DEIJ, so all of these factors require compatible action.

While attendees recognize the importance of considering mental health impacts when completing community resilience work, tackling this major issue comes with roadblocks. For those grantees associated with university partners, many of the mental health resources available through universities are proprietary and therefore are unavailable for use by grantees (or use with significant restrictions). In some areas, especially rural areas, there are few mental health professionals who are willing to participate in resilience projects. When trauma is fresh, such as in the Western U.S. in communities recently impacted by wildfire, the topics of community resilience and preparedness can be too overwhelming for community members to discuss. Grantees struggle to balance providing important information and disempowering community members. This can lead to a delay of planned programming to preserve mental health at certain moments of especially high tension.

### **COVID-19 Impacts / Moving Forward**

The COVID-19 pandemic has significantly impacted educational systems in both formal and informal realms, and there may be long-term changes resulting from the pandemic. On the formal side, the Department of Education states the pandemic “has exacerbated existing inequities and inadequacies across a range of social structures, including our nation’s education system” in their [COVID-19 Handbook](#). Addressing these growing inequities, impacts of lost instructional time, post-trauma well-being of students and teachers, and a workforce hit with a major instability are just some of the challenges currently facing K-12 systems. On the informal side, many site-based institutions have been severely impacted, with some uncertain if they will ever open their doors again. Meanwhile, [UNESCO reports](#) that “countries must seek solutions beyond formal education, by mobilizing and utilizing non-formal and informal learning resources in cooperation with partners across sectors”. This leaves the future very uncertain.

These breakout sessions reiterated that the pandemic has disrupted every project and resulted in lost momentum and retraining in new virtual formats. All projects experienced a shift to virtual programming, while most faced turnover in teachers and staff, challenges engaging with students, and the temporary and permanent closing of place-based organizations. As the pandemic continued, there was a general rise in frustration, especially among teachers. The pandemic also exacerbated existing social inequities and inequalities. Despite the hardships, groups innovated and used new technologies such as StoryMaps. Students shared presentations virtually with community members and had more interaction with practitioners because less travel was required. The pandemic devastated many communities and organizations, but it also created some opportunities that will continue in the long-term.

Virtual learning has drawbacks compared to in-person learning, but it can be more cost-effective. However, the capabilities and accessibility of virtual learning are increasing. Many grantees anticipate that virtual and hybrid programming will continue moving forward. The virtual landscape also more easily creates the potential to scale-up projects in new ways and reach larger audiences. For much of the pandemic, the outdoors were one of the few places that felt safe for health and well-being, so some grantees are working to capitalize on the appreciation of the outdoors that the pandemic helped foster. The pandemic disruption provided an opportunity to reflect on current systems and institutions and identify ways to change them. The continued uncertainty associated with the pandemic makes it challenging to plan for the future, but it has revealed new programming opportunities that warrant continued exploration.

## **Administration Priorities**

The Biden-Harris Administration has issued several executive orders that call for changes to much of the way the government operates to address climate change and equity and justice discrepancies. NOAA's work and the work of NOAA's grantees are central to this charge. Several aspects of the workshop addressed these executive order topics. Excerpts from three executive orders follows.

The [Executive Order on Racial Equity](#) mandates that all Federal agencies pursue a comprehensive approach to advancing equity for all, including those who have been historically underserved. Under the Executive Order, agencies must conduct an equity assessment by reviewing their programs and policies to determine whether underserved communities face systematic barriers to accessing benefits and services.

### [Executive Order on Tackling the Climate Crisis at Home and Abroad](#)

We must listen to science — and act. We must strengthen our clean air and water protections. We must hold polluters accountable for their actions. We must deliver environmental justice in communities all across America. The Federal Government must drive assessment, disclosure, and mitigation of climate pollution and climate-related risks in every sector of our economy, marshaling the creativity, courage, and capital necessary to make our Nation resilient in the face of this threat. Together, we must combat the climate crisis with bold, progressive action that combines the full capacity of the Federal Government with efforts from every corner of our Nation, every level of government, and every sector of our economy.

It is the policy of my Administration to organize and deploy the full capacity of its agencies to combat the climate crisis to implement a Government-wide approach that reduces climate pollution in every sector of the economy; increases resilience to the impacts of climate change; protects public health; conserves our lands, waters, and

biodiversity; delivers environmental justice; and spurs well-paying union jobs and economic growth, especially through innovation, commercialization, and deployment of clean energy technologies and infrastructure. Successfully meeting these challenges will require the Federal Government to pursue such a coordinated approach from planning to implementation, coupled with substantive engagement by stakeholders, including State, local, and Tribal governments.

#### Creation of the Civilian Climate Corps

Sec. 219. Policy. To secure an equitable economic future, the United States must ensure that environmental and economic justice are key considerations in how we govern. That means investing and building a clean energy economy that creates well-paying union jobs, turning disadvantaged communities — historically marginalized and overburdened — into healthy, thriving communities, and undertaking robust actions to mitigate climate change while preparing for the impacts of climate change across rural, urban, and Tribal areas. Agencies shall make achieving environmental justice part of their missions by developing programs, policies, and activities to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts. It is therefore the policy of my Administration to secure environmental justice and spur economic opportunity for disadvantaged communities that have been historically marginalized and overburdened by pollution and underinvestment in housing, transportation, water and wastewater infrastructure, and health care.

#### [Executive Order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis](#)

Section 1. Policy. Our Nation has an abiding commitment to empower our workers and communities; promote and protect our public health and the environment; and conserve our national treasures and monuments, places that secure our national memory. Where the Federal Government has failed to meet that commitment in the past, it must advance environmental justice. In carrying out this charge, the Federal Government must be guided by the best science and be protected by processes that ensure the integrity of Federal decision-making. It is, therefore, the policy of my Administration to listen to the science; to improve public health and protect our environment; to ensure access to clean air and water; to limit exposure to dangerous chemicals and pesticides; to hold polluters accountable, including those who disproportionately harm communities of color and low-income communities; to reduce greenhouse gas emissions; to bolster resilience to the impacts of climate change; to restore and expand our national treasures and monuments; and to prioritize both environmental justice and the creation of the well-paying union jobs necessary to deliver on these goals.

## Action for Climate Empowerment National Strategy

For the plenary session on day 3, Frank Niepold, the [Action for Climate Empowerment \(ACE\)](#) National Focal Point for the United States and the Climate Educator Coordinator in [NOAA's Climate Program Office](#), provided an overview of the Biden-Harris Administration's national strategy for empowering climate action.

The ACE's goal is to empower all members of society to engage in climate action through education, training, public awareness, public access to information, public participation, and network coordination. ACE has significant resources in each of these areas, but they are not currently well-aligned. There are many existing federal agencies that support aspects of ACE or could be realigned or expanded to do so, including NOAA, NSF, NASA, EPA, and others. In late 2020, the [ACE National Strategic Planning Framework for the United States](#) was released to help put diversity, equity, inclusion, and justice (DEIJ) at the center of climate decision-making. To highlight how the ACE Framework aligns with what ELP grantees are already doing in their projects, Frank asked attendees: "Which ACE elements does your program support?" The poll results are in Table 4. As he wrapped up his talk, Frank requested that attendees support the development and implementation for the ACE National Strategy by participating in future dialogues and sharing and promoting best practices. He also posed the question: "How could a national strategic plan help your work?" Responses are in Appendix C.

Table 4. Poll responses to the question: Which ACE elements does your program support? (select all that apply)

ACE Elements	% (#) of grantees whose programs support each element
Education	98 (46)
Training	51 (24)
Network Coordination	53 (25)
Accelerating Just Climate Action	47 (22)
Public Awareness	79 (37)
Public Participation	66 (31)
Public Access to Information	57 (27)

## Workforce / Civilian Climate Corps

As workshop participants heard from NOAA's Chief of Staff, Karen Hyun, who provided the welcome remarks on day 1, "preparing our youth for the jobs of the future" is a major focus of the Biden-Harris Administration, and one way the administration is moving forward with this goal is by standing up a new Civilian Climate Corps. While the Civilian Climate Corps is still being developed, there are many existing job training programs to which ELP projects could be

better connected, and there are possibilities for connections with the new climate corps in the future.

Rather than viewing the challenges presented by climate change as negatives, it is important to also visualize opportunities as the globe tackles these challenges. Knowledge of climate change will be required for more jobs, and there will be new jobs created that are focused on directly addressing climate change. It is also imperative that this future workforce reflects the diversity of our country. And although not called out as an explicit objective for all ELP-funded projects, many of the funded projects are building skills in youth audiences that prepare them to build resilience and create a low-carbon economy in future jobs. There is growing recognition that education and career pathways are far less linear than in the past.

This is such an important topic that this workshop devoted all of the first day breakout sessions to it, and participants had many ideas about how to move forward. Attendees expressed that, for many students, there is no obvious career pathway that leads from school into climate-oriented technical trade jobs. While both technical trade jobs and other jobs that require college degrees need employees, it seems that many students are unaware of the technical jobs or how to get into those fields. Students need exposure to the full range of possible jobs earlier in their academic work with clear entry points for the different career paths. At the same time, students should receive workforce skills training that is applicable to their life regardless of their career goals. There is no straight path from primary school to a career, but internships were repeatedly mentioned as important tools to help students gain experience and learn about different careers. Paying students for their work in internships increases inclusivity. Likewise, externships are another important tool because they often allow students to remain in their community and do place-based work that directly influences them and other people they know. The breakout room attendees also discussed the importance of co-producing opportunities with local communities to increase buy-in. By thinking more intentionally about how to transition students from K-12 schooling to resilience jobs, there is an opportunity to build a workforce that is prepared to tackle the challenges brought about by climate change.

Thinking more specifically about future NOAA ELP solicitations, breakout session attendees had mixed feelings about the inclusion of workforce development as a component of future grant proposals. Most participants thought that workforce development might fit with a grant but that incorporating a workforce component should not be mandatory. In addition, the framing of any workforce solicitation should emphasize that the intention is not to just train technical trade workers but to help make large-scale societal changes to how technical positions are perceived and the pathways available to get those positions. Many current grantees do not include workforce development and adding that piece would feel like an unnatural fit. Others argued that projects already do work in this space, so requiring workforce development in a grant application is unnecessary. A few participants feel differently and want ELP to prioritize workforce

development moving forward because there are not many investments in this space at the moment. The attendees agreed that if money is explicitly designated for workforce development, then designated funds are also needed for other areas such as equity.

## Systemic Implementation of Environmental Education

The NOAA ELP grants provide important financial and institutional support to projects occurring across the United States and territories. An emphasis of ELP is that the work be place-based and include local partners so that projects match the needs of specific communities and can more comprehensively take into account local cultural nuances. Over the years, many grantees have reported about how they would like to expand the influence of their successful projects beyond the local scale and sustain them in the longer-term. A lack of resources, financial and otherwise, can act as roadblocks to this type of expansion.

The [Pisces Foundation](#) out of San Francisco, California provides grants to nonprofit organizations to collaboratively work on natural resource challenges and environmental learning. For the keynote on day 1, Jason Morris, the Senior Program Officer for Environmental Education, and Rachel Szczytko, the Program Associate for Environmental Education, spoke to workshop attendees about how field building helps ensure that all young people gain the environmental literacy they need to build stronger, more equitable communities and foster a sustainable environment. Building environmental literacy requires repeated environmental and outdoor engagement and learning experiences, but many face barriers to access of such experiences. The Pisces Foundation focuses on strengthening and expanding the components of field infrastructure so that environmental and outdoor learning experiences are meaningful, inclusive, repeated, and have long-lasting impacts.

Table 5. Poll responses to the question: What geographic scope do you work at? (select all that apply)

<b>Geographic scope</b>	<b>% (#) of attendees working at this scope</b>
Neighborhood	63 (35)
City	61 (34)
County/district	57 (32)
State/territory	52 (29)
Multi-state/multi-territory	23 (13)
Regional	45 (25)
National	39 (22)
Tribal Nation	13 (7)
International	11 (6)

After providing some background information about the Pisces Foundation and their goals, Jason and Rachel discussed movement infrastructure which involves the common language, tools, and

mindsets to achieve breakthrough results. The infrastructure involved in this idea includes the following: equity and cultural relevance, the knowledge base, effective advocacy, funding, standards of practice, shared narrative, and backbones and networks. Jason and Rachel particularly emphasized equity and cultural relevance to ensure engagement is consistent with the cultural context values of a community and the broad, ever-evolving knowledge base. Movement is relevant here because the focus is on scales that reach beyond only what is local and on the infrastructure that connects the field horizontally and vertically, such as at local, state, regional, and national scales. To get a sense of the current grantee projects, Jason and Rachel asked about the geographic scope of each project’s work (see Table 5). The ToC depicts a framework for a programmatic learning collaboration that can catalyze field infrastructure to support and further develop the work to achieve scaled, breakthrough results. Put another way, the Pisces Foundation sees the ToC and the ELP community of practice as an opportunity for future investment to address gaps in the current field infrastructure.

Based upon the results of a survey sent prior to the workshop, Jason and Rachel explored the types of infrastructure that are most in-demand among grantees. They reported that fundraising and diversity, equity, and inclusion and/or cultural relevance were the most requested. Assistance with communications, policy advocacy, evaluation, and effective practices for teaching were also needed, but to a lesser extent. They also asked the ELP grantees if anyone at their respective organizations builds infrastructure (see Table 6). Jason and Rachel concluded their session with two questions: (1) What do you need to achieve breakthrough results in community resilience education? (2) What kind of infrastructure would you build? The responses are in Appendix D.

Table 6. Poll responses to the question: Does anyone at your organization build movement infrastructure?

<b>Response</b>	<b>% (#) of attendees</b>
Yes	64 (28)
No	0 (0)
Unsure	36 (16)

## **Takeaways and Next Steps**

By the end of the three-day workshop, participants had connected with other community of practice members, shared ideas and thought about how their own projects fit into the ToC and relate to pertinent topics such as DEIJ.

The conversations about the ToC allowed grantees to see how their projects match the causal pathways. All of the causal pathways were well-represented by project activities. It was exciting to see the diversity of ways that grantees approached the causal pathways and how each project is making an impact in its target community. Many workshop participants agreed about the



utility of the ToC and how new grantees will benefit tremendously from this framing document. While the ToC serves as an important starting point, it was created as a living document, and NOAA ELP is committed to updating it on a regular basis. The information gathered during the workshop will inform the next update as will additional information gathered from grantee progress reports, conferences, published literature, and other sources.

The breakout sessions on evaluating resilience outcomes, DEIJ, mental health and social well-being, and the impacts and opportunities from the COVID-19 pandemic were important opportunities for connection and collaboration. These are conversations that are needed on a regular basis and that may require making adjustments to projects and to our own lives. The NOAA ELP strives to create an inclusive space that funds and promotes place-based work to increase community resilience. Addressing these topics up-front and proactively can only strengthen grantee work and help grantees and the communities that they serve.

The Biden-Harris Administration's prioritization on empowering climate action means there are evolving opportunities to get involved. To stay engaged with ACE efforts, grantees can frequently check the [United States ACE Coalition website](#) and sign up there for the ACE newsletter to receive updates. More information about how the United States will advance the ACE agenda is expected prior to the United Nations Conference of the Parties 26 in November 2021.

ELP grantees' feedback regarding their needs for field infrastructure that supports community resilience education will inform ongoing planning for collaborations between NOAA's ELP and the Pisces Foundation.

Through the plenary sessions and conversations throughout the workshop, there was a call for more frequent interaction among the community of practice, particularly around evaluation, working in rural communities, and ripple effects mapping of outcomes that started with an ELP project but expanded beyond the original scope or expectations. As a community of practice, we will continue to explore these topics and see if there are working groups interested in forming to have conversations about these concepts.

ELP will continue to build this grantee network, strengthen partnerships, and work to advance the field of resilience education. Projects funded under the next ELP funding opportunity will be encouraged to consider and integrate information from the ToC and the community of practice.

## Appendices

### Appendix A: Participants

Name	Institution	ELP Project
Abby Randall	EcoRise	Building a Green Texas: Activating a New Generation of Sustainability Leaders
Miriam Solis	EcoRise	Building a Green Texas: Activating a New Generation of Sustainability Leaders
Allie Durdall	University of the Virgin Islands	U.S. Virgin Islands Storm Strong Program
Kristin Grimes	University of the Virgin Islands	U.S. Virgin Islands Storm Strong Program
Zola Roper	University of the Virgin Islands	U.S. Virgin Islands Storm Strong Program
Allison Titcomb	ALTA Consulting LLC	Recharge the Rain: Community Resilience through STEM Education
Betsy Wilkening	AZ Project WET - University of Arizona	Recharge the Rain: Community Resilience through STEM Education
Joaquin Murrieta	Watershed Management School	Recharge the Rain: Community Resilience through STEM Education
Amulya Rao	University of Wisconsin Madison	Climate Strong—Building Tribal Youth Leadership for Climate Resiliency
Courtney Kowalczak	Fond du Lac Tribal and Community College	Climate Strong—Building Tribal Youth Leadership for Climate Resiliency
Anne Gold	CIRES, University of Colorado Boulder	HEARTForce: Hazard Education, Awareness & Resilience Taskforce
Katya Schloesser	CIRES, University of Colorado Boulder	HEARTForce: Hazard Education, Awareness &

Name	Institution	ELP Project
		Resilience Taskforce
Anne Henderson	FAU Pine Jog Environmental Education Center	Climate Resilience Education and Action for Dedicated Youth Program (Climate READY Program)
Lauren Butcher	FAU Pine Jog Environmental Education Center	Climate Resilience Education and Action for Dedicated Youth Program (Climate READY Program)
Rachel Wellman	Boca Raton Community High School	Climate Resilience Education and Action for Dedicated Youth Program (Climate READY Program)
Ray Coleman	FAU Pine Jog Environmental Education Center	Climate Resilience Education and Action for Dedicated Youth Program (Climate READY Program)
Brett Branco	Brooklyn College	Resilient Schools Consortium (RiSC) Program; The Resilient Schools Consortium (RiSC) Phase II: Connecting Schools to Coastal Communities
Emily Fano	National Wildlife Federation	Resilient Schools Consortium (RiSC) Program; The Resilient Schools Consortium (RiSC) Phase II: Connecting Schools to Coastal Communities
Heather Sioux	National Wildlife Federation	Resilient Schools Consortium (RiSC) Program; The Resilient Schools Consortium (RiSC) Phase II: Connecting Schools to Coastal Communities
Brian Helmuth	Northeastern University	Science Center Public Forums: Community Engagement for Environmental Literacy, Improved Resilience, and Decision-Making; Citizen Science, Civics, and Resilient Communities (CSCRC)
Caroline Nickerson	SciStarter	Citizen Science, Civics, and

Name	Institution	ELP Project
		Resilient Communities (CSCRC)
Catherine McCarthy	NISE Network - Arizona State University	Citizen Science, Civics, and Resilient Communities (CSCRC)
David Sittenfeld	Museum of Science, Boston	Science Center Public Forums: Community Engagement for Environmental Literacy, Improved Resilience, and Decision-Making; Citizen Science, Civics, and Resilient Communities (CSCRC)
Katie Todd	Museum of Science, Boston	Science Center Public Forums: Community Engagement for Environmental Literacy, Improved Resilience, and Decision-Making; Citizen Science, Civics, and Resilient Communities (CSCRC)
Mahmud Farooque	Arizona State University	Science Center Public Forums: Community Engagement for Environmental Literacy, Improved Resilience, and Decision-Making; Citizen Science, Civics, and Resilient Communities (CSCRC)
Nicholas Weller	Arizona State University	Science Center Public Forums: Community Engagement for Environmental Literacy, Improved Resilience, and Decision-Making; Citizen Science, Civics, and Resilient Communities (CSCRC)
Sara Benson	Museum of Science, Boston	Citizen Science, Civics, and Resilient Communities (CSCRC)
Beth Covitt	University of Montana	ResilienceMT: Montana Rural and Tribal Community Resilience Exhibit and Forums
Robin Saha	University of Montana	ResilienceMT: Montana Rural and Tribal Community

Name	Institution	ELP Project
		Resilience Exhibit and Forums
Bryan Lewis	EcoWorks	Resilience from the Youth Up
Ethan Lowenstein	Southeast Michigan Stewardship Coalition	Resilience from the Youth Up
Laura Florence	Southeast Michigan Stewardship Coalition	Resilience from the Youth Up
Dave Reidmiller	Gulf of Maine Research Institute	Community Resilience Informed by Science and Experience (C-RISE)
Gayle Bowness	Gulf of Maine Research Institute	Community Resilience Informed by Science and Experience (C-RISE)
Laura Millay	University of Maine, RiSE Center	Community Resilience Informed by Science and Experience (C-RISE)
David Tarcy	Chugach School District	Environmental Literacy for Alaskan Climate Stewards (ELACS)
Douglas Penn	Chugach School District	Environmental Literacy for Alaskan Climate Stewards (ELACS)
Sheryl Sotelo	Chugach School District	Environmental Literacy for Alaskan Climate Stewards (ELACS)
Donna Peterson	Mississippi State University	Increasing Sea-Level Rise Resilience in the Northern Gulf of Mexico
Renee Collini	Mississippi State University - MS-AL Sea Grant - FL Sea Grant	Increasing Sea-Level Rise Resilience in the Northern Gulf of Mexico
Sonia Vedral	Mississippi State University	Increasing Sea-Level Rise Resilience in the Northern Gulf of Mexico
Elizabeth Trowbridge	Center for Alaskan Coastal Studies	Southcentral Alaska Collaborative for Resilience through Education and Decision-making (SACRED)

Name	Institution	ELP Project
Shelley Stromholt	Aspect Research + Evaluation, LLC	Southcentral Alaska Collaborative for Resilience through Education and Decision-making (SACRED)
Syverine Bentz	Kachemak Bay National Estuarine Research Reserve	Southcentral Alaska Collaborative for Resilience through Education and Decision-making (SACRED)
Ellen Theg	Groundwork Hudson Valley	Global, Local, Coastal: Preparing the Next Generation for a Changing Planet
Joel Rodriguez	Groundwork Hudson Valley	Global, Local, Coastal: Preparing the Next Generation for a Changing Planet
Erin Griffin	The Wild Center	Convening Young Leaders for Climate Resilience in New York State; Empowering Rural Youth for Community Climate Resilience in New York State
Jen Kretser	The Wild Center	Convening Young Leaders for Climate Resilience in New York State; Empowering Rural Youth for Community Climate Resilience in New York State
Karen Thomas	The Wild Center	Empowering Rural Youth for Community Climate Resilience in New York State
Nadia Harvieux	Finger Lakes Institute at Hobart and William Smith Colleges	Empowering Rural Youth for Community Climate Resilience in New York State
Nancy Shannon	The Wild Center	Convening Young Leaders for Climate Resilience in New York State; Empowering Rural Youth for Community Climate Resilience in New York State
Stephanie Ratcliffe	The Wild Center	Convening Young Leaders for Climate Resilience in New York State; Empowering Rural Youth for Community Climate Resilience in New York State

Name	Institution	ELP Project
Jaymee Nanasi Davis	University of Hawaii Maui College	Building Environmental Resiliency Leaders (BERL)
Jeremy Hoffman	Science Museum of Virginia	Learn, Prepare, Act - Resilient Citizens Make Resilient Communities; Climate Resilience and Community-driven Action With a Hyperlocalized Public Forum
Rob Jones	GroundworkRVA	Learn, Prepare, Act - Resilient Citizens Make Resilient Communities; Climate Resilience and Community-driven Action With a Hyperlocalized Public Forum
Jeri Nolan	Ocean Discovery Institute	Empowering Climate Change Resiliency through Education in an Underserved Community
Lindsay McKay	Ocean Discovery Institute	Empowering Climate Change Resiliency through Education in an Underserved Community
Kathryn Semmens	Nurture Nature Center	CREATE Resilience: Community Resilience through Education, Art, Technology, and Engagement
Keri Maxfield	Nurture Nature Center	CREATE Resilience: Community Resilience through Education, Art, Technology, and Engagement
Rachel Carr	Nurture Nature Center	CREATE Resilience: Community Resilience through Education, Art, Technology, and Engagement
Lisa Gardiner	University Corporation for Atmospheric Research Center for Science Education	R4Ed: Rigor, Relevance, and Relationships in Resilience Education
Melissa Rummel	University Corporation for Atmospheric Research	R4Ed: Rigor, Relevance, and Relationships in Resilience Education
Sarah Fontana	South Louisiana Wetlands	R4Ed: Rigor, Relevance, and

Name	Institution	ELP Project
	Discovery Center	Relationships in Resilience Education
Liz Georgakopoulos	New England Aquarium	Community Partnership for Resilience
Adam Ratner	The Marine Mammal Center	National Network for Ocean Climate Change Interpretation (NNOCCI)
Noah Newman	Colorado State University/CoCoRaHS	CoCoRaHS
Tom Naiman	The Maritime Aquarium	Sound Resilience-Get on Board!
Robin Dunbar	Elizabeth River Project	Preparing Norfolk Area Students for America's Second Highest Sea Level Rise
Laura Blackmon	University of Southern Mississippi Marine Education Center	
Jason Morris	Pisces Foundation	
Rachel Szczytko	Pisces Foundation	
Grace Edinger	Earth Force	
Vince Meldrum	Earth Force	
Emily Yam	Aquarium of the Pacific	
Diana Warren	Learning Endeavors	
T'Noya Thompson	NAAEE	
Brian Thill	South Carolina Aquarium	
Amy Clark	NOAA Fisheries Southeast Regional Office	
Andrea Sassard	NOAA Office of Education	
Atziri Ibanez	NOAA Office of Education	
Bronwen Rice	NOAA Office of Education	
Carrie McDougall	NOAA Office of Education	
Christopher Nelson	NOAA Office of Education	



<b>Name</b>	<b>Institution</b>	<b>ELP Project</b>
Christos Michalopoulos	NOAA Office of Education	
Gabrielle Corradino	NOAA Office of Education	
Jaime Frungillo	NOAA Office of Education	
John Baek	NOAA Office of Education	
John McLaughlin	NOAA Office of Education	
Lisa Kim	NOAA Office of Education	
Louisa Koch	NOAA Office of Education	
Maggie Allen	NOAA Office of Education	
Maggie Beetstra	NOAA Office of Education	
Marissa Jones	NOAA Office of Education	
Sandy Sarvis	NOAA Office of Education	
Sarah Schoedinger	NOAA Office of Education	
Tim Zimmerman	NOAA Office of Education	
Hannah Chamberlain	NOAA Chesapeake Bay Office	
Bart Merrick	NOAA Chesapeake Bay Office	
Elise Trelegan	NOAA Chesapeake Bay Office	
Shannon Sprague	NOAA Chesapeake Bay Office	
Frank Niepold	NOAA Climate Program Office	
Sean Bath	NOAA Climate Program Office/University Corporation for Atmospheric Research	
Bruce Moravchik	NOAA National Ocean Service	
Kayelyn Simmons	NOAA National Ocean Service	
So-Jung Youn	NOAA National Ocean Service	
Mahealani Bambico	NOAA Office of National Marine Sanctuaries	
Seaberry Nachbar	NOAA Office of National Marine Sanctuaries	

Name	Institution	ELP Project
Rafael de Ameller	NOAA Visualization Lab	
Karen Hyun	NOAA Chief of Staff	
Jamie Price	U.S. Coast Guard	

## Appendix B: Agenda

### Day 1 - Tuesday, May 25th (all times in Eastern Daylight Time)

TIME	SESSION
1:00 - 1:35 PM	<b>Welcome Remarks</b> <i>Carrie McDougall and Sarah Schoedinger (Environmental Literacy Program co-leads, NOAA Office of Education)</i> <i>Louisa Koch (Director, NOAA Office of Education)</i> <i>Karen Hyun, PhD (Chief of Staff, NOAA)</i>
1:35 - 1:40 PM	<b>Transition / Explanation of Projects Introductions</b>
1:40 - 2:05 PM	<b>Project Introductions, Round 1</b> <i>NOAA ELP Grantees</i>
2:05 - 2:15 PM	<b>Break</b>
2:15 - 2:40 PM	<b>Project Introductions, Round 2</b> <i>NOAA ELP Grantees</i>
2:40 - 3:10 PM	<b>Keynote: Findings from the Pisces Foundation work on systemic implementation of Environmental Education</b> <i>Jason Morris and Rachel Szczytko (Pisces Foundation)</i>
3:10 - 3:25 PM	<b>Transition / Explain Format of breakout rooms</b>
3:25 - 4:00 PM	<b>Workforce / Climate Conservation Corps Breakout Rooms</b>
4:00 PM	<b>Adjourn</b>

### Day 2 - Wednesday, May 26th (all times in Eastern Daylight Time)

TIME	SESSION
1:00 - 1:10 PM	<b>Welcome &amp; report out of day 1</b> <i>John McLaughlin (Environmental Literacy Program, NOAA Office of Education)</i>
1:10 – 1:50 PM	<b>ELP Theory of Change Overview</b>

TIME	SESSION
	<i>Carrie McDougall and Sarah Schoedinger (Environmental Literacy Program co-leads, NOAA Office of Education)</i>
1:50 – 1:55 PM	<b>Transition</b>
1:55 – 2:55 PM	<b>Theory of Change Causal Pathway breakout sessions #1</b>
2:55 – 3:05 PM	<b>Break</b>
3:05 – 4:00 PM	<b>Theory of Change Causal Pathway breakout sessions #2</b>
4:00 PM	<b>Adjourn</b>

**Day 3 - Thursday, May 27th (all times in Eastern Daylight Time)**

TIME	SESSION
1:00-1:15 PM	<b>Welcome &amp; report out of day 2</b> <i>Maggie Allen and Maggie Beetstra (Environmental Literacy Program, NOAA Office of Education)</i>
1:15 – 1:55 PM	<b>Keynote: Action for Climate Empowerment (ACE) Strategy</b> <i>Frank Niepold (NOAA Climate Program Office)</i>
1:55 – 2:00 PM	<b>Transition</b>
2:00 – 2:45 PM	<b>Breakout Rooms</b> <ul style="list-style-type: none"> <li>● <i>Diversity, Equity, Inclusion, and Justice (DEIJ)</i></li> <li>● <i>Mental Health/Social Well being</i></li> <li>● <i>COVID Impacts/Moving Forward</i></li> <li>● <i>Evaluating Resilience Outcomes</i></li> </ul>
2:45 – 2:55 PM	<b>Break</b>
2:55 – 3:40 PM	<b>Breakout Rooms</b> <ul style="list-style-type: none"> <li>● <i>Diversity, Equity, Inclusion, and Justice (DEIJ)</i></li> <li>● <i>Mental Health/Social Well being</i></li> <li>● <i>COVID Impacts/Moving Forward</i></li> <li>● <i>Evaluating Resilience Outcomes</i></li> </ul>
3:40 - 3:45 PM	<b>Transition</b>
3:45 – 4:00 PM	<b>Closing Session</b> <i>Christos Michalopoulos (Deputy Director, NOAA Office of Education)</i> <i>Carrie McDougall and Sarah Schoedinger (Environmental Literacy Program co-leads, NOAA Office of Education)</i>
4:00 PM	<b>Adjourn</b>

## Appendix C: Chatbox Results - ACE Framework

During his talk, Frank Niepold described the newly-developed ACE National Strategy for Empowering Climate Action for the United States. He posed the following question to attendees: How could a national strategic plan help your work? Responses are below.

- Create alignment across project, across time and space
- Hopefully funding!
- Help prioritize
- Synergistic partnerships
- Intentionally ID connections between education work and partners working on ed. and other elements of the strategy.
- Benchmark and evaluate progress, identify gaps, coordinate and gap fill where needed
- Accelerated learning in community of practice with projects working with similar strategies in different regions.
- It could help inform project development.
- Give direction to our organizational planning around mission, vision, and the logic models that support those
- Provide measurable outcomes.
- Align funding to support education, mitigation actions and community building
- We could design education to address needs/gaps identified from the plan
- Allow for more collaboration between governmental and tribal entities both for funding and program development
- Not duplicating efforts
- I think it could help alignment. But I think political divisions could undermine some of the value.
- Connectivity and interdependence structures that require orgs to work more with one another
- This is awesome! A wondering--Per systems change theory--changing belief systems are highest lever to change--such as racism, ableism, individualism, materialism, standardization etc. Right now public education is based on supporting a very narrow vision of success based on these beliefs in the dominant culture. National strategy cut incentivize transformational changes in education that are needed in order for social transformation.
- Demonstrate the climate change education needs to be a whole of society approach; also could be scaled to work and align at the State Level
- Funding priorities and official networking with other governmental organizations
- Understanding federal priorities across sectors could help us align educational programming and teacher training, ensure that education is prioritized and embedded across all sectors, and prioritized in federal budgets.

- I think that this could be especially helpful if we can help convince resilience planning funders that education is a core part of the resilience strategies. There are people who think that public engagement efforts are a roadblock to putting resilience strategies into place, given the urgency of the issue. I think if public engagement is a clearly demarcated part of the a national strategy, it's tougher to advocate skipping over it.
- Provides a foundation for arguing for investment, and not just one time funding
- A strategic plan, if done well, can help to deploy resources strategically as they become available. Sometimes I get worried about the "national" aspect - I think we need to be thinking about the unique needs and different places that each of us are in with regard to these topics.
- A central role for k-12 system and community colleges
- May help us thinking about how schools are/can be centers within the community (appropriately resourced) that model and support resilience
- Help with access to resources (all types!) across the rural-urban divide
- Must include locally-based bottom-up capacity building leveraging local knowledge and supporting org capacity in EJ communities - listen to their needs.
- Schools are often shelters in emergencies...can we build upon that with making them hubs for resilience and proactive planning
- It is resonant- I think that if funding opportunities are clearly outlined within the strategic plan that would be ideal
- A national strategy would foster engagement of national systems (NERRs, Sanctuaries) that have local/place based focus and are embedded in communities
- We definitely need communities of practice, but I feel like there may be mechanisms to leverage (such as this one) so that we can focus some funding into implementation.
- Where do different funding opportunities plug into the plan, and RFPs incorporate language of the strategy

## **Appendix D: Chatbox Results - Pisces Foundation**

During their talk, Jason Morris and Rachel Szczytko discussed community resilience education and introduced attendees to the Pisces Foundation and the concept of movement infrastructure. As part of this discussion, they asked attendees: What do you need to achieve breakthrough results in community resilience education? Responses are below.

- We need staff, funding and organizational buy-in and leadership to be able to pursue more resiliency work.
- Funding is a big one and more team and more knowledge and capacity across the region.
- Partnerships and collaborations are important to our organization; also long term sustainability

- Funding and time to build cohesive authentic relationships
- Funding and extended educational programming
- We've been cultivating a group of Colorado based resilience educators - if we had 3 days to meet together and really put our heads together to plan, I think we could really make some big progress! Currently, we are all busy coordinating our disparate programs, and do our best to share each other's resources, plan events around one another. But if we could put our heads together to strategize that would be amazing!
- Cross-sector collaborations and synergies
- Linking climate change impacts with community priorities/concerns like gentrification
- Long-term funding (beyond 5 years)
- Our main challenge has always been staff, and the funding to pay for them. Staff levels were lean even before the pandemic, now due to some budget-related reductions, we are really challenged.
- We need community outreach connections and a firm understanding of what level of engagement you are focused on.
- Funding so that programs can be sustainable and encourage equity in communities that lack resources
- Community buy-in and collaborations for sustainability.
- I think the long-term/sustainability piece is really important to sustain this work, we want to be able to tell community and civic partners that our partnerships don't have an end date on them
- Having some funding longevity in order to build capacity in outreach coordinators. It is hard to retain quality people when you have 2-3 year funding chunks that don't give us time to have sustainable staffing.
- A dedicated community engagement staff member to complement our educator's work.
- We need long-term funding to be able to connect projects and let them grow and evolve
- Gap funding for sustaining engagement
- So many initiatives in this space once connections are made. Cohesion and collaboration is critical to amplify impact and avoid duplication of efforts. Sustainable funding is critical so projects can grow and have a long-term impact.
- Long term funding strategies for project iteration and sharing
- Funding/Focus
- Addressing not only "professional development" needs of teachers but addressing the question of teacher wellbeing especially in disenfranchised communities. We have created a model for supporting the "whole teacher" where they don't have to leave their humanity at the door.
- I think we need to move funding to investment - meaning funding and support is maintained over time so that projects are just one time occurrences
- A giant marketing/communication effort on par with the Heartland Institute/Fossil Fuel disinformation campaigns but towards consistent and clear messaging on climate change

science, impacts and solution (centering justice and equity) across all sectors to shift public opinion and investment

- We are engaging in a collective visioning process using specific protocols and processes. Equitable and inclusive visioning processes will be critical.
- It takes time and building consensus across many organizations and perspectives. Unfortunately with short-term funding this is not always possible.
- Municipal entities working with educational partners, engaging youth leaders as part of community resilience planning

Additionally, they asked: What kind of infrastructure would you build?

- We need to convene the community to build the common agenda on climate change learning.
- Connecting decision-makers to EE providers and who they serve
- Building Regional framework to support state level efforts in the Mid Atlantic, including network influencers at various levels.
- We need to make the topics relevant to communities and people and show that their contribution/engagement matters.
- Pathway for students to learn and be engaged to take action to translate into action they can continue as adults
- We're in the process of forming a climate resilience task force with members from community, business, government to include all voices, focusing in particular on the community groups, members and legislators from the most impacted neighborhoods.
- Shared metrics
- Formal forums/Institutions that support conversations between schools, school leaders, env. lit. providers, and networks
- Infrastructure for articulating the demand function and infrastructure for brokering relationships between knowledge producers and users
- More bridges between the EE community and traditional science classroom teaching communities, also bridges between resilience practitioners/emergency managers and educators
- Need a national assessment of what is in place in systemic environmental literacy....at state and district level.
- Communities often frame their priorities/concerns differently. E.g, public health, community development, etc. Need to thinking about multiple ways to frame impacts...
- A community of learning for those interested in building the civic competence of young people.
- A platform to share the hurricane curriculum more widely, and more funding to support students taking their resilience plans to the next level - implementing them within their community.

- A backbone org/agency/partnership that is coordinating clear strategies across the nation with a network of partners (and maybe state coordinators) at all scales working in public participation, formal/informal education, workforce, etc
- Sharing networks and partnerships to serve communities - it is so much work to maintain networks so if we all do the work separately we will have a hard time scaling up.
- Infrastructure that works from bottom up, an inverted infrastructure.
- Funding for full time staff over multiple years that would allow for going to scale. And vision of scale that is consistent with the needs of under-resourced and disenfranchised communities.
- Support for operations and great programs versus funding just for new ideas and funding not supporting operations
- An inverted pyramid
- Partnerships and collaborations between informal, formal, tribal and governmental organizations and agencies
- Also need a way to communicate across regional/state efforts.
- Strengthening state level networks and ensuring clear communication pathways between such networks that can enable more alignment in environmental literacy efforts
- Infrastructure to support national workforce development, mentorship, and career exposure programs to ensure that people of color are represented at all levels in this movement.
- Some of our thoughts about shared metrics actually comes from some of our work in the NSF INCLUDES network which focuses on this
- Capacity in communities to make sense of and make decisions amidst continuing scientific uncertainty.
- A funding model that moves work from innovation to scaled impact.
- Efforts in cultural relevance... by bridging cultural knowledge with research/evaluation
- I'll just say that the NOAA Education resilience theory of change is really helpful, I have been sharing it with collaborators and it really helps to convey that this work is filling a need and we aren't just blundering through the work but rather leveraging collective knowledge being built by the grantees here - (wonderful also that the NOAA ed folks are such thoughtful and active listeners and are willing to shift priorities in response to these needs and facilitate the group learning rather than just supporting individual projects.

## **Appendix E: Resources**

Below are resources that were shared by workshop participants throughout the event. Please note that all links were active as of the date of publication of this report but may have changed since.



## Day 1 Plenary

- Museum of Science, Boston [Climate Hazard Resilience Forum](#)
- [SciStarter](#)
- National Informal STEM Education Network [Citizen Science, Civics, and Resilient Communities project](#)
- Hazard Education Awareness and Resilience Task Force ([HEART Force](#))
- [U.S. Virgin Islands Storm Strong Program](#)
- Groundwork Hudson Valley [Climate Safe Neighborhoods project](#)
- Resilient Schools Consortium ([RiSC](#)) in New York City
- [Climate and Resilience Education Task Force](#)
- [Rethink Outside](#)
- [Examining Equitable and Inclusive Work Environments in Environmental Education](#)
- North American Association for Environmental Education [collaborative research library](#)
- North American Association for Environmental Education [environmental literacy briefs](#)
- [Field Building for Population-Level Change](#)
- [Social Movements and Philanthropy: How Foundations Can Support Movement Building](#)

## Day 3 Plenary

- Architectural design awards for best transportation and infrastructure projects, [Hunter's Point South Park in Queens, NY](#)
- [GreenWave ocean farming](#)
- American Society of Adaptation Professionals [Knowledge & Competencies Framework for Climate Change Adaptation and Climate Resilience Professionals](#)
- American Federation of Teachers [Resolution in Support of Green New Deal](#)
- [Association for Career & Technical Education](#)

## Workforce Development Breakout Sessions

- [The Corps Network](#)
- Strategic Energy Innovations [2020 Impact Report](#)
- WE ACT for Environmental Justice [Worker Training and Job Readiness Program](#)
- [Reimagining STEM Workforce Development as a Braided River](#)
- Montana State University [Climate Leadership Course](#)
- Project Learning Tree [Green Job Online Quiz](#)

## Causal Pathway 3 Breakout Sessions

- Arizona Project WET - [Recharge the Rain Art Outreach](#)

- Museum of Science, Boston - [Science Center Public Forums Summative Evaluation Report](#)
- Groundwork Hudson Valley - [Final Evaluation Report](#)
- Book - [Civic Responsibility and Higher Education](#)

#### **Causal Pathway 4 Breakout Sessions**

- KXCI 91.3 podcast - [City High School Seniors Explore Tucson's Water Challenges and Heritage](#)
- [Need Public Policy for Human Gene Editing, Heatwaves, or Asteroids? Try Thinking Like a Citizen](#)

#### **Causal Pathway 5 Breakout Sessions**

- Research Article - [Hope in Context: Developmental Profiles of Trust, Hopeful Future Expectations, and Civic Engagement Across Adolescence](#)
- [Jemez Principles for Democratic Organizing](#)
- University of Maryland Center for Environmental Science - [Wave of Plastic](#)

#### **Causal Pathway 6 Breakout Sessions**

- KQED - [Climate Solutions Are About Neighborhoods Thriving](#)
- NSF [Informal Science](#)
- The Cornell Lab of Ornithology Developing, Validating, and Implementing Situated Evaluation Instruments ([DEVISE](#)) Project
- NOAA ELP [Map](#) of Resilience Grantees and their impact areas

#### **COVID-19 Breakout Sessions**

- Southeast Michigan Stewardship Coalition - [Gallery Exploration](#)

#### **DEIJ Breakout Sessions**

- Research Article - [Applying Indigenous Community-Based Participatory Research Principles to Partnership Development in Health Disparities Research](#)
- [The Wild Center](#)
- [Alliance for Climate Education](#)
- Headwaters Economics - [Neighborhoods At Risk](#)

- Research Article - [Just don't call it climate change: Climate-skeptic farmer adoption of climate-mitigative practices](#)
- EcoRise - [Introduction to Environmental Justice](#)
- University of Hawai'i Sea Grant College Program - [Kūlana Noi'i](#)
- [Flexibility in Budget Language](#)
- [Southeast Michigan Stewardship Coalition](#)
- [Trust-Based Philanthropy Project](#)
- [ProsperityME](#)
- [Gateway Community Services Maine](#)
- [Wabanaki Alliance](#)
- [Mapping Inequality: Redlining in New Deal America](#)
- [The Breakthrough Inclusive Action Tool Kit](#)
- The University of Maine - [Maine Midden Minders](#)

### **Mental Health/Social Well-being Breakout Sessions**

- Climate for Health - [Dr. Lise Van Susteren](#)
- Scientific American - [Climate Anxiety Is an Overwhelmingly White Phenomenon](#)
- CIRES - [Natural Hazards and Social Emotional Wellbeing](#)
- [Self Care Starter Kit](#)
- CIRES - [Envisioning a Resilient Future](#)
- New York City Civic Engagement Commission - [Statement of Needs](#)
- Research Article - [From anger to action: Differential impacts of eco-anxiety, eco-depression, and eco-anger on climate action and wellbeing](#)

### **Resilience Outcomes Breakout Sessions**

- StoryMap - [Preparing for Coastal Flooding in South Portland](#)
- [One Climate Future](#)
- [Great Lakes Indian Fish & Wildlife Commission](#)
- Alaska Federation of Natives - [2019 Annual Convention, Resolution 19-56](#)
- U.S. Climate Resilience Toolkit - [Case Studies](#)
- The Wild Center - [Youth Partnering with the New York State Climate Smart Communities Program](#)
- Research Article - [Biocultural approaches to well-being and sustainability indicators across scales](#)
- Resilience Metrics - [Kachemak Bay \(Alaska\)](#)

## References

- Department of Education. (2021). Ed COVID-19 Handbook: Roadmap to Reopening Safely and Meeting All Students' Needs. URL: <https://www2.ed.gov/documents/coronavirus/reopening-2.pdf>
- National Oceanic and Atmospheric Administration. (2019). Environmental Literacy Grant Federal Funding Opportunity. URL: <https://www.grants.gov/web/grants/view-opportunity.html?oppId=321575>
- National Oceanic and Atmospheric Administration. (2020). NOAA's Community Resilience Education Theory of Change. URL: <https://www.noaa.gov/education/explainers/noaa-community-resilience-education-theory-of-change>
- National Oceanic and Atmospheric Administration. (2021). 2021-2040 NOAA Education Strategic Plan. URL: <https://www.noaa.gov/education/explainers/2021-2040-noaa-education-strategic-plan>
- National Oceanic and Atmospheric Administration. (2021). Billion-Dollar Weather and Climate Disasters: Overview. URL: <https://www.ncdc.noaa.gov/billions/>
- United Nations. (2021). Youth. URL: <https://www.un.org/en/global-issues/youth>
- United Nations Educational, Scientific and Cultural Organization. (2020). How cities are utilizing the power of non-formal and informal learning to respond to the COVID-19 crisis. URL: <https://unesdoc.unesco.org/ark:/48223/pf0000374148>
- The White House. (2021). Executive Order on Advancing Racial Equity and Support for Underserved Communities Through the Federal Government. URL: <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-advancing-racial-equity-and-support-for-underserved-communities-through-the-federal-government/>
- The White House. (2021). Executive Order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis. URL: <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-protecting-public-health-and-environment-and-restoring-science-to-tackle-climate-crisis/>

The White House. (2021). Executive Order on Tackling the Climate Crisis at Home and Abroad.  
URL: <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>