Environmental education

Environmental education (EE) aims to provide scientifically sound knowledge, as well as to inform and enable civic action and problem solving. It ranges from global to local challenges of environmental sustainability and climate resilience, including sustainable communities and environmental justice.

While EE is a lifelong process and can occur in many organizational settings, such as workplaces and professions, it typically focuses on children and youth, from pre-K to universities. It occurs in classrooms as well as in other settings, such as youth organizations (YMCA and YWCA, Boys and Girls Clubs, 4-H), conservation organizations (National Wildlife Federation, National Audubon Society), and institutions such as such as zoos, aquariums, nature centers, municipal and national parks.

In the United States, EE has developed as a robust field because its associational structure has become relatively well aligned with a federal "policy design for democracy" that enables innovation and engagement, while promoting scientific and pedagogical excellence. The North American Association for Environmental Education (NAAEE) – along with its many partners in other associations, school systems, and public agencies – has helped to cohere the field, while promoting guidelines for excellence for community engagement.

The National Environmental Education Act of 1990 built upon the work of these associations by designing and funding a training partnership among important players across the field, with rotating leadership through its successive five-year grant cycles. The training partnership is currently led by NAAEE.

In addition, the 1990 Act authorized the establishment of the National Environmental Education Advisory Council (a federal citizen advisory committee) and the National Environmental Education Foundation (a nonprofit that can raise additional funding).

Environmental education encompasses a wide array of pedagogical practices, from traditional science learning to place-based stewardship education and community-based environmental action research to citizen-science and environmental justice projects. Although whole courses devoted to EE are relatively rare in K-12 education, EE's relevance to a wide range of subject matter is increasingly recognized through EE content integrated into curricula across disciplines.

While the EE field has many areas for growth and improvement, it has been challenged from the beginning by limited budgets, as well as by resistance among climate change deniers in oil and gas industries and some state legislatures. The current Trump administration reinforces this resistance and reduces federal support considerably, though the institutional foundations for the field are relatively robust and will likely prompt resilience and innovation.

Brief historical background

Education about nature goes back many decades. In the 1960s, as the environmental movement grew rapidly, national environmental organizations developed magazines, clubs, and programs

targeted to children and youth. Prominent among these were the National Wildlife Federation and the National Audubon Society.

On April 22, 1970, a massive teach-in took place in some 1,500 colleges and universities, as well as in 10,000 schools and a multitude of other community settings. This first Earth Day gave a huge boost to environmental education just as major federal environmental legislation was being passed by Congress and the U.S. Environmental Protection Agency (EPA) was being established.

Several months after Earth Day, the Environmental Education Act of 1970 was passed by Congress. It provided funding for various initiatives. However, the Office of Environmental Education – initially at the Department of Health, Education, and Welfare and then in the newly created Department of Education in 1979 – was discontinued early in the administration of President Ronald Reagan (1981-1989).

Nonetheless, EE innovation continued in schools, communities, and conservation associations. Congress – with the leadership of Senator Edward Kennedy of Massachusetts – passed the National Environmental Education Act of 1990, which was signed by President George H.W. Bush (1989-1993).

Because its policy design incentivized "effective partnerships and networks," as well as pedagogical excellence to help develop the skills to solve "complex environmental problems ... of the natural and built environment," the 1990 EE Act has helped the field become quite robust, with an increasing emphasis on civic engagement as part of active learning and community problem solving.

References:

Adam Rome, *The Genius of Earth Day: How a 1970 Teach-In Unexpectedly Made the First Green Generation* (New York: Hill and Wang, 2013). Order info.

David M. Bearden, *National Environmental Education Act of 1990: Overview, Implementation, and Issues for Congress* (Washington, DC: Congressional Research Service, August 2006).

National Environmental Education Act, Public Law 101-619, November 16, 1990 (quotations).

Policy design and capacity building across the EE field

The institutional capacity of the EE field has become more robust over time, although it has had to weather criticism and relative neglect on various fronts, including from some conservatives in Congress and the executive branch. Here we sketch a few key components of the institutional and policy field, and later return to some proposals for moving forward.

Major new investments in environmental education are vital for a democratic, effective, and just response to climate change. This is especially true for place-based projects and networks that promote sustainable cities, restored ecosystems, and environmental justice, and that help to build the skill sets for collaborative governance across landscapes and sustainable business practices across industries.

National Environmental Education Act (NEEA, 1990)

The 101st Congress passed NEEA in 1990 and it was signed into law by President George H.W. Bush (1989-1993), with the full support of William Reilly, administrator of the U.S. Environmental Protection Agency (EPA), where the new Office of Environmental Education was housed. The original funding authorization expired at the end of FY1996, but it continued to be refunded at approximate $9 million per year thereafter for another decade or so, when the George W. Bush administration (2001-2009) proposed further cuts.

Criticisms by conservatives included charges of scientific bias and issue advocacy, while the Office of Management and Budget had questions of performance metrics, claiming that results could not be demonstrated. These concerns led to further systematic research and improvement, as well as the development of Guidelines for Excellence.

NEEA established other key institutional supports for environmental education (below), as well as funding for EE grants, training, fellowships, and awards.

References and resources:

National Environmental Education Advisory Council (NEEAC), *2015 Report to the U.S. Environmental Protection Agency Administrator*.

The Journal of Environmental Education, *Environmental Education Research*

James Elder, *A Field Guide to Environmental Literacy: Making Strategic Investments in Environmental Education* (Environmental Education Coalition, 2003). **Order info**.

Robert B. Stevenson, Michael Brody, Justin Dillon, and Arjen E. J. Wals, eds., *International Handbook of Research on Environmental Education* (New York: Routledge, 2013). **Order info**.

Nicole M. Ardoin, Alison W. Bowers, Noelle Wyman Roth, and Nicole Holthuis, "Environmental Education and K-12 Student Outcomes: A Review and Analysis of Research," *Journal of Environmental Education* 49 (2018): 1-17, which reviews 119 peer reviewed articles over a 20-year span.

Nicole M. Ardoin, Allison W. Bowers, and Estelle Gaillard, "Environmental Education Outcomes for Conservation: A Systematic Review," *Biological Conservation* 241 (2020): 1-13.

Nicole M. Ardoin, Alison W. Bowers, and Estelle Gaillard, "A Systematic Mixed Studies Review of Civic Engagement Outcomes in Environmental Education," *Environmental Education Research* 29 (2023): 1-26.

National Environmental Education and Training Program (NEETP)

The most important capacity building program enabled by the 1990 EE Act has been NEETP, informally known as the teacher training program (and in its early years as the Environmental Education and Training Partnership, or EETAP). This program provides in-service and pre-service training based upon existing quality EE programs and EE Guidelines for Excellence, as well as support for state-based infrastructure.

NEETP provides multi-year cooperative agreements (typically five years), which fund a consortium of EE organizations across the field, with a lead institution, such as a university (University of Michigan, Cornell University, University of Wisconsin-Stevens Point) or association (North American Association for Environmental Education), which has led the consortium during the most recent two grant cycles under the rubrics ee360 and ee360+.

In 2017, NAAEE drew upon extensive experience in the field among its partner and member organizations to develop its 170-page *Community Engagement: Guidelines for Excellence* (2017). It includes a broad range of pedagogically sound principles and practices for engaged EE that is community-centered, collaborative, and inclusive, and that fosters healthy, resilient, and just communities.

References and resources:

NAAEE, *Community Engagement: Guidelines for Excellence* (Washington, DC, 2017).

EPA, *National Environmental Education Training Program*.

National Environmental Education Advisory Council (NEEAC)

NEEAC was established by the 1990 law, in accordance with the Federal Advisory Committee Act (FACA) of 1972 that enables balanced representation from various stakeholders. It includes 11 members: 2 each from primary/secondary education, colleges/universities, nonprofits engaged in EE, state departments of education/natural resources, and business/industry, as well as one from senior Americans.

The purpose of NEEAC is to provide advice to EPA on its grant and training programs, as well as to assess the state of EE in the nation, obstacles and challenges in view of current and anticipated environmental problems. It also makes recommendations about how to build capacity across the EE field, including nonprofit organizations and educational institutions.

References and resources:

National Environmental Education Advisory Council (NEEAC), *2015 Report to the U.S. Environmental Protection Agency Administrator*.

NEEAC charter (updated 2018). NEEAC website.

Susan L. Moffitt, *Making Policy Public: Participatory Bureaucracy in American Democracy* (New York: Cambridge University Press, 2014), for a general analysis of federal citizen advisory committees as an important democratic contribution to the functioning of our federal bureaucracies. Order info.

EE Task Force

This task force, also authorized in the 1990 Act, is comprised of representatives of federal agencies, especially those that engage in activities relevant to environmental education, such as the National Park Service, National Oceanic and Atmospheric Administration, and U.S. Fish and Wildlife Service. Its activity, however, has been sporadic, at best.

National Environmental Education Foundation (NEEF)

NEEF was established by the 1990 law as a 501(c)(3) nonprofit to complement the EE work of the EPA. It raises money from various corporate and foundation sources, as well as from government grants and a federal appropriation. NEEF provides grants to organizations across the field to build capacity and increase diversity for lifelong environmental education and public health (e.g. pediatric asthma), as well as to conduct public and corporate sustainability, employee participation, and community service campaigns.

NEEF leverages public and private partnerships, including other federal agencies, to engage young people in education, stewardship, and resilience work. Its grant capacity, however, has remained relatively modest at $1 million or so per year.

NEEF has supported programs to increase climate literacy for nearly 400 broadcast meteorologists in over 130 stations across the U.S.

References and resources:

National Environmental Education Foundation, *Environmental Literacy in the United States: An Agenda for Leadership in the 21st Century* (Washington, DC, October 2015), developed with support of the USDA Forest Service Conservation Education Program; written by Judy Braus, executive director of NAAEE, and other NAAEE staff and fellows.

National Environmental Education Foundation (NEEF), *The Business Case for Environmental and Sustainability Employee Education* (February 2010).

NEEF, *The Engaged Organization: Corporate Employee Environmental Education Survey and Case Study Findings* (March 2009).

NEEF, *2023 Annual Report*.

Associations and Curricula

Associations have been key in developing innovative EE curricula and institutional capacity. These include local and state networks, as well as national and global associations. Quite common are partnerships that include teacher networks, school systems, youth associations, national environmental organizations, colleges and universities, museums and aquariums, and public agencies at various levels of the federal system.

North American Association for Environmental Education (NAAEE)

NAAEE is a nonpartisan professional association and a "network of networks" designed to promote EE through teaching, research, and service. It encompasses various pedagogies, as well as the understanding of policy making, problem solving, and management, but does not advocate for policy outside its purview of environmental education.

NAAEE was originally founded as a national association in 1971; it officially became tri-national in 1983 with the inclusion of members from Canada and Mexico. It has come to serve as the general association or "backbone organization" of the field in the U.S., and works to develop leadership among teachers, administrators, and superintendents.

NAAEE has placed increasing emphasis on civic engagement and diversity, equity and inclusion. Its 170-page publication, *Community Engagement: Guidelines for Excellence* (2017), which was developed in collaboration with public agencies, national associations, and other institutions, includes a broad range of pedagogically sound principles and practices for engaged EE that is community-centered, collaborative, and inclusive, and that fosters healthy, resilient, and just communities.

References and resources:

NAAEE, *Community Engagement: Guidelines for Excellence* (Washington, DC, 2017).

NAAEE, Guidelines for Excellence: guidelines and other EE resources for early childhood, K-12, professional development, higher education, nonformal, research, and other areas of EE practice.

NAAEE, *A Just and Sustainable Future: Strategy Framework 2024-2026*.

MECCE Project & NAAEE, *Mapping the Landscape of Higher Education Climate Change Education Policy in the United States.* Monitoring and Evaluating Climate Communication and Education Project and North American Association of Environmental Education (Washington, DC, 2023).

Centre for Sustainable Futures, MECCE Project, & NAAEE. (2024). *Mapping the Landscape of Nonformal Climate Change Communication and Education across the United States*. Monitoring and Evaluating Climate Communication and Education Project and North American Association of Environmental Education (Washington, DC, 2024).

NAAEE, Our History, ee360, NAAEE Podcasts, NAAEE Newsletters

State EE Associations

State EE associations typically include a wide range of groups, including teacher networks across schools and school districts, state and local chapters of environmental organizations (Audubon, National Wildlife Federation, Sierra Club), youth associations (YMCA, 4-H), conservation corps, universities (including Cooperative Extension and Sea Grant programs), local, state, and regional watershed groups (Colorado Watershed Assembly, Chesapeake Bay Foundation), and zoos, aquariums, museums, and hiking clubs. Many partner with one or more federal and state agencies.

While state EE associations are not chapters of NAAEE (as in classic multi-tiered national associations), they are affiliates that serve to build further capacity at the state level for goals that are shared – and deliberated – widely across the national field of EE associations. Some provide EE certification and training.

States have moved increasingly, if unevenly, towards the adoption of environmental literacy plans (ELPs). Most stress four key goals: academic achievement, social emotional learning, civic engagement, and workforce development.

The No Child Left Inside (NCLI) Act, passed in one version by the U.S. House of Representatives in 2008 with bipartisan support, gave a boost to the development of ELPs since funding was anticipated, though the Senate ultimately failed to vote on it and momentum was stalled in some states. It has been reintroduced in Congress several times.

The Chesapeake Bay Foundation – which combines advocacy, litigation, hands-on collaborative restoration, and environmental education – has led a broad coalition of dozens of organizations for the NCLI Act. It was also instrumental in having EE included as a key component of the Chesapeake Bay Agreement (updated in 2014) among states in the region (plus DC). This agreement, signed initially in 1983, helped to pioneer a collaborative ecosystem and place-based framework nationally that includes indispensable roles for civic action and environmental justice.

References, resources, affiliate programs:

NAAEE, *State Environmental Literacy Plans: 2019 Status Report*.

Chesapeake Bay Foundation EE

- Student Leadership; School Leaders

Colorado Alliance for Environmental Education

- *How to Tell a More Effective Story about EE* (2020), a framing guide.
- Organizational members

E3 Washington

- 2025 Legislative Priorities; Youth Engaged in Sustainable Systems
- Learning Games and Videos (including from NOAA, Cornell Lab Bird Academy, PBS)

Southeastern Environmental Education Alliance

- EE Providers Landscape Analysis (2020) of eight Southeastern states.

Katie Worth, *Miseducation: How Climate Change is Taught in America* (New York: Columbia Global Reports, 2021), on the efforts of the fossil fuel industry to distort climate education through state legislatures, school boards, textbook publishers, think tanks, and in other venues. **Order info**.

National environmental organizations

Some national environmental membership organizations (with state chapters), while focusing on national and state advocacy as well as litigation, have been developing EE resources and programs for many decades, both in their chief focal areas and more broadly on climate change. Some of these EE resources are intentionally designed to develop stewardship skills and leadership pathways.

- National Wildlife Federation: has magazines, books, videos, games, and guides for parents and teachers.

  It also has extensive outreach to schools, childcare centers, park agencies, and other institutions. It develops learning resources and activities for homes, gardens, field trips for younger kids, and schoolyard habitats, as well as climate change, energy systems, sustainable food, and species decline for grades 6-12.

  High school juniors and seniors have available EcoLeaders and Earth Tomorrow programs to advance leadership and potential careers, and NWF's EcoCareers provides a *Career Services Toolkit* for guidance counselors and teachers. NWF now registers some 5,000 schools as Eco-Schools, which are part of a broader "green schools" movement.

  Resources:

NWF Educator Tools, NWF Education Programs, EcoSchools U.S.

On the green schools movement:

Lisa A.W. Kensler and Cynthia Uline, *Leadership for Green Schools* (New York: Routledge, 2016). **Order info.**

Cynthia L. Uline and Lisa A. W. Kensler, *A Practical Guide to Leading Green Schools* (New York: Routledge, 2021). **Order info.**

- National Audubon Society: produces magazines, videos, interactive games, and puzzles.

  Audubon's several hundred local and campus chapters, as well as nature centers, engage broadly in habitat conservation work, with its legacy focus on bird populations. It sponsors EE and community science programs, such as the Great Backyard Bird Count, Native Plant Database, Christmas Bird Count, and Climate Watch.

  It also co-sponsors eBird with the Cornell Lab of Ornithology and the National Science Foundation.

  References and resources:

  Judy Braus, ed., *Tools for Engagement: A Toolkit for Engaging People in Conservation* (New York: National Audubon Society, 2011), a beautiful and clear 209-page guide for planning and executing community-based projects, including team building, community assessment, social media, cases studies, and much more.

  Elizabeth Cherry, *For the Birds: Protecting Wildlife through the Naturalist Gaze* (New Brunswick, NJ: Rutgers University Press, 2019). Full review and order info.

- Sierra Club, Loma Prieta chapter: film and speaker series in its Environmental Stewardship Program 2025, with broad array of topics (sea level rise, local government climate action, sustainable land use, backyard ecology).

- Carmen Sirianni and Stephanie Sofer, "Environmental Organizations," in Lester M. Salamon, ed., *The State of Nonprofit America*, second edition (Washington, DC: Brookings Institution Press, 2012), 294-328. **Order info**.

National EE projects

In the 1970s and 1980s, several important EE projects emerged from state and regional environmental councils and natural resource agencies, and have since become part of national nonprofit organizations. The major ones – Project Learning Tree, Project WILD, and

Project WET – have trained hundreds of thousands of teachers by building upon state agency staff and enlisting thousands of volunteers.

- Project Learning Tree: "is committed to advancing environmental education, forest literacy, and green career pathways, using trees and forests as windows on the world…. Together, we are growing future forest and conservation leaders."

  PLT is an initiative of the Sustainable Forestry Initiative, a non-profit charitable organization with the mission of advancing sustainability through forest-focused collaboration. It provides instructional materials for pre-K-12, professional development opportunities, and an extensive distribution and support network.

  Sponsors and partners have included federal and state government agencies, state forestry associations, state universities and Extension Services, state environmental education associations, and other non-profit entities, as well as representatives from industry.

  Resource:

  Project Learning Tree, *Pre K-8 Environmental Education Activity Guide*, 4th edition (Washington, DC: Sustainable Forestry Institute, 2021). Order info.

  This widely utilized, inexpensive, 480-page guide contains a cornucopia of creative exercises with cross-cutting themes and storylines that testify to the fertile exchange among practitioners and co-productive learners in every region of the country.

- Project WILD (Wildlife in Learning Design): its mission is "to provide wildlife-based conservation and environmental education that fosters responsible actions toward wildlife and related natural resources."

  It is a project of the Association of Fish and Wildlife Agencies, which represents state agencies across the country. Project WILD develops curricular materials and facilitates training through its network of fish and wildlife agencies, Cooperative Extension, and other partners in states across the country.

  Resource:

  Association of Fish and Wildlife Agencies, *Project Wild K-12 Curriculum & Activity Guide, Revised Edition* (Washington, DC, 2018). Order info.

- Project WET (Water Education for Teachers): "envisioning a world in which action-oriented education enables everyone to understand and value water, ensuring a sustainable future."

Project WET publishes student activity booklets, children's story books, educator guides, maps and posters that address a variety of critical water topics through science-based activities. Some are tailored to specific states and watersheds.

Its most recent 592-page curriculum and activity guide contains a rich compendium of hands-on activities that combine investigation with team work, decision making, and problem solving skills that embody its mission of "action-oriented education."

Resource:

Project Wet Foundation, *Project WET Curriculum and Activity Guide 2. 0*. (Bozeman, MT: Project Wet Foundation, 2011). Order info.

Urban EE and environmental justice

Urban EE stresses *place* as a site for community forestry, green infrastructure, street design, river restoration, and community gardens, with special emphasis on the role of youth as assets and active participants. Partnerships are the preferred form for urban EE, sometimes on a very ambitious scale and including environmental justice (EJ).

The Bronx River Alliance, for instance, works with 75 schools and colleges to engage students in hands-on learning and restoration of the river corridor, including its greenspace and recreation areas. Its core partnership is with the New York City Department of Parks and Recreation, but it also counts some 100 community-based organizations, regional nonprofits, businesses, and other government agencies as partners in education, restoration, art, and recreation, with an eye toward developing careers in ecological restoration and parkland management.

The Great Lakes Stewardship Initiative (GLSI) has utilized an approach it calls "place-based stewardship education," including school-community partnerships, multiple learning experiences of meaningful duration, and generating real benefits for the community and environment. Youth voice in school projects, as well as democratic participation in a larger public discourse that engages multiple constituencies beyond schools, are central principles.

References and resources:

Bronx River Alliance

Rebecca Nielsen, Chad Segrist, Ethan Lowenstein, and Lisa Marchkini-Polk, *The Cody Youth Ambassadors: Voices for Change and Hope in the Cody Rouge Community, Detroit, Michigan* (June 2016), 92-page case study. Plus 10 other in-depth GLSI cases.

Alex Russ and Marianne E. Krasny, eds., *Urban Environmental Education Review* (Ithaca, NY: Cornell University Press, 2017). Order info.

Carolyn McLaughlin, *South Bronx Battles: Stories of Resistance, Resilience, and Renewal* (Oakland: University of California Press, 2019). Order info.

Victoria Derr, Louise Chawla, and Mara Mintzer, *Placemaking with Children and Youth: Participatory Practices for Planning Sustainable Communities* (New York: New Village Press, 2018). Order info.

Chicago Wilderness Alliance, Newsletters, Partner organizations

Earth Force

National Oceanic and Atmospheric Administration (NOAA)

While various federal agencies have offices for environmental education, NOAA has developed ambitious EE programs and a well-articulated mission to enhance civic engagement.

As its most recent *NOAA Education Strategic Plan 2021-2040* declares, its "vision of healthy ecosystems, communities, and economies that are resilient in the face of change … would not be possible without an engaged public." This 20-year, agency-wide strategic plan builds upon years of work, and indeed has been required by Congressional legislation beginning in 2007 and reauthorized in 2017 as part of the American Innovation and Competitiveness Act.

NOAA made the shift to community-based resilience and solutions-oriented approaches after its Tri-Agency Climate Education Collaborative with the National Aeronautics and Space Administration and the National Science Foundation in 2009-2014 showed that science education projects on the causes of climate change did not result in behavioral changes.

NOAA's Education Council includes representatives from 16 major offices and programs at the agency, and engages in partnerships with a broad array of EE associations, colleges and universities, fishery management councils and commissions, aquariums and marine science centers, and local, state, and tribal governments.

NOAA has also developed a Digital Coast partnership with leading professional and conservation associations – American Planning Association, Association of State Floodplain Managers, The Nature Conservancy, and others – to provide models, toolkits, and narratives to enable public discussion and civic stewardship.

NOAA's Sea Grant includes a network of 34 university-based state programs focused on building partnerships in coastal and Great Lakes communities.

References and resources:

NOAA Planet Stewards: upcoming events, educational resources, webinar archives, professional development workshops.

National Oceanic and Atmospheric Administration, *NOAA Education Strategic Plan 2021-2040: Advancing NOAA's Mission through Education*. (This file has been removed from the NOAA website by executive order of the Trump administration, but is accessible here.)

Genie Bey, Carrie McDougall, and Sarah Schoedinger, *Report on the NOAA Office of Education Environmental Literacy Program Community Resilience Education Theory of Change* (Washington, DC: NOAA, July 2020).

Jaime Frungillo, Krysta Hougen, Bart Merrick, Bronwen Rice, Shannon Sprague, Elise Trelegan, Timothy D. Zimmerman, *An Educator's Guide to the Meaningful Watershed Educational Experience* (Washington, DC: NOAA Bay and Watershed Education and Training Program, October 2022). Also available here.

NOAA Education Council, *Education Accomplishments: 2009-2023 Reports*, which include year-by-year summaries across five areas of funded projects.

Moving forward

Environmental education has grown and matured enormously over the past several decades, and holds further potential to enrich the civic ethos and skills of ordinary Americans and their institutional partners for sustainable communities and climate resilience. Yet EE also faces significant challenges in the years ahead.

The policy design of the National Environmental Education Act of 1990 was responsive to EE initiatives in the previous decades by teacher networks, environmental organizations, youth associations, state natural resource and education agencies, and the North American Association for Environmental Education. The training partnership that NEEA authorized and funded through the EPA has, in turn, enabled robust growth of these and other networks and careful refinement of excellence in pedagogical practices.

Community engagement has become an increasingly important component of EE practice and has become progressively aligned with and embedded in collaborative engagement for sustainable and healthy communities, environmental justice, watershed restoration, community forestry, and climate and resilience planning.

Federal agencies beyond EPA have also developed offices and programs to integrate EE into their work, and the National Oceanic and Atmospheric Administration developed an ambitious strategic plan that could provide a model for other agencies going forward in the future.

Yet the EE field faces persistent challenges and now far more serious threats.

The most serious threat is the Trump administration's efforts to reduce staff, eliminate programs and funding, and disrupt strategic planning at EPA, NOAA, and other federal agencies that include EE as an important part of their work.

Strategies to resist such core threats will emerge in the coming months and CivicGreen will cover them as best we can. Please help to keep us updated by emailing us at carmensirianni511@gmail.com. We will honor all requests for confidentiality.

Over the medium and longer run, the EE field faces still other challenges and opportunities. Among them are:

- *Invest:* EE has long been underfunded relative to the growing complexities and challenges of climate resilience and climate justice, and EPA funding has persistently fallen short of congressional authorization. In the coming years, critical EE investments from the federal government, as well as from local and state agencies, nonprofit, university, and philanthropic sources should be increased significantly, with a special emphasis on approaches that link professional and citizen science to collaborative action in communities.

- *Reverse, Restore, and Renew:* the systematic assault by the Trump administration on federal agency environmental and climate programs will have to be reversed, and some of the existing infrastructure enabled by the 1990 EE Act, such as the training partnership, will have to restored.

  But we should think beyond this as well. The *NOAA Education Strategic Plan 2021-2040: Advancing NOAA's Mission through Education* offers a model to be emulated in other federal agencies with purview over communities, ecosystems, land use, disasters, and public health challenges relevant for climate resilience and environmental justice.

- *Depolarize:* climate change education can play into political and cultural polarization that hampers constructive action at the community level and beyond. While we should counter false claims by climate deniers in appropriate venues, such as state legislatures and local school boards, we also need to communicate constructively and build relationships with those teachers, parents, students, and others who may be climate skeptics, but not hard ideological deniers.

  Coalition for Climate Education Policy, *Sea Change: Effective Communications for Climate Education Policy* (January 2023).

  This calls for richer climate communication practices more generally, as we discuss in our report, *Civic Engagement in American Climate Policy: Collaborative Models* (October 2022), chapter 11.

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We welcome suggestions and comments to help improve this entry:

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