

Earth Day at 50: A Time to Engage

Denis Hayes and Daniel Magraw

Fifty years ago, on April 22, 1970, 20 million people of all ages joined together to celebrate nature’s wonders, protest against threats to the environment and human health, and demand that our leaders take these issues seriously. Earth Day recognizes that planet Earth is our only home. We have no “Planet B.”

Earth Day has grown phenomenally. It is considered to be the largest civic observance in the world. On its twentieth anniversary, in 1990, more than 100 million people in 141 countries participated. This number ballooned to hundreds of millions in 2000, in 184 countries, and included related activities in the weeks leading up to and following April 22nd. In 2009, the UN General Assembly passed a resolution declaring April 22 International Mother Earth Day. By 2010, the number of countries celebrating Earth Day rose to 192. One year later, the Earth Day Network (EDN) launched the world’s largest environmental service project—A Billion Acts of Green. The global campaign hopes to inspire individual and organizational initiatives that help reduce carbon emissions and support sustainability. To date, 2.6 billion acts have been recorded, and EDN hopes to record 3 billion by Earth Day 2020.

The 50th Earth Day, on April 22, 2020—termed “EarthRise” after the famous NASA photograph that showed Earth rising above the moon’s surface—will involve tens of thousands of events in the weeks surrounding that day and hundreds of millions of people on every continent.

50 Years of Earth Day: 1970–2020

Earth Day’s impact has been remarkable. In a real sense, the first Earth Day launched the modern environmental movement. Within six years, the U.S. Congress passed the following acts:

- Clean Air Act (1970)
- Lead Paint Poisoning Prevention Act (1971)
- Clean Water Act (1972)
- Marine Mammal Protection Act (1972)
- Marine Protection, Research and Sanctuaries Act (1972)
- Federal Insecticide, Fungicide, and Rodenticide Act (1972)
- Endangered Species Act (1973)
- Safe Drinking Water Act (1974)
- Hazardous Materials Transportation Act (1975)
- Resource Conservation and Recovery Act (1976)
- Toxic Substances Control Act (1976)
- National Forest Management Act (1976)

Within the same period, American policymakers took these significant actions:

- Established the Environmental Protection Agency (EPA) (1970)
- Established the National Oceanic and Atmospheric Administration (NOAA) (1970)
- Banned most uses of the pesticide DDT (1972)
- Limited the use of lead in gasoline (1974)
- Established the Corporate Average Fuel Economy (CAFE) standards for cars (1975)

Similar advances were made in nations around the world. It became impossible for political leaders to ignore the environment. The most difficult issues are often those that cross national borders or are located in the global commons—the atmosphere and the oceans. But even there, we have successfully negotiated a global agreement to protect the ozone layer—and the ozone hole is shrinking (Montreal Protocol, 1987). Terrestrial and marine protected areas have been



(AP Photo/Alan Diaz)

Miami high school students Katrina Perez, left, Melanie Calderon, Vanesa Rivera and Olivia Alvarez, background (Miami Seaquarium Summer Campers) pick up debris at Virginia Key Beach in Key Biscayne, Fla., demonstrating one of the countless ways that young people can help tackle environmental threats, June 8, 2006.

established in virtually every country in the world. Migratory birds and other species are being given increased transboundary protections. These and countless other accomplishments demonstrate that concerted effort can indeed be successful, particularly when people become involved in identifying problems and demanding solutions.

At the same time, however, many environmental conditions have worsened. It is critically important that young people today have opportunities to help alleviate these conditions and that they be encouraged to do so.

Earth Day provides ways for people of all ages and organizations of all types

to become engaged in protecting the environment. Even a quick glance at the Earth Day website, www.earthday.org/, reveals dozens of opportunities for involvement, such as environmental literacy, citizen science, environmental clean-ups, reducing the use of plastic, adopting more environmentally friendly diets, “greening” cities, and taking climate action.

What Has Changed Since 1970

A paradigm-shifting development since 1970 is recognition of the concept of “ecosystem services” and of how critically important they are. Ecosystem services consist of the many advantages

to human society that nature provides for free. These include: the provision of food, fuel, fiber and water; pollination of crops by insects; purification of water by wetlands and forests; protection against ultraviolet radiation by the ozone layer; water power; and opportunities and resources for aesthetic, recreational, spiritual and religious experiences. For a much more comprehensive list, see UN Environment Programme (UNEP), *Millennium Ecosystem Assessment: Ecosystems and Human Well-Being, Synthesis 40* (2005). When one considers the full range of ecosystem services, it becomes clear that nature is the true infrastructure of society.

If current trends continue, there will be a greater mass of plastic in the ocean than fish by the year 2050.

This “natural infrastructure” is under profound threat. We are in a new geologic era, the Anthropocene, in which human activity has become a major force—akin to ice ages, plate tectonics, and major asteroid collisions—affecting the biosphere.

Although scientists have been predicting these changes for decades, a series of sobering new reports have been published in recent years. For example, the Lancet Commission on Pollution and Health (2017) found that 9 million

people died in 2015 from pollution and that the number is likely to increase. If current trends continue, there will be a greater mass of plastic in the ocean than fish by the year 2050.¹ The world’s oceans are rapidly acidifying and losing oxygenation killing coral reefs and posing serious threats to shellfish and the base of the marine food chain.² There are three billion fewer birds in North America today than in 1970, a 29 percent decrease, as well as a precipitous drop in pollinating insects.³ As many as one million species face extinction worldwide.⁴ Environmentalists are also at risk! An average of three environmentalists were murdered every week around the world in 2018, with almost no prosecutions, according to the international nonprofit Global Witness.

We even are polluting outer space: the U.S. Space Surveillance Network

reports nearly 20,000 pieces of space debris orbiting the Earth, endangering operating satellites. On the 50th anniversary of the Apollo 11 moon landing, *Vox* reported that astronauts have left roughly 100 bags of human biological waste on the moon. In August 2019, an Israeli mission carrying dormant, remarkably resilient microscopic organisms called tardigrades crashed during a lunar landing, leaving behind living creatures on the moon’s surface.

Environment-related migration is already occurring and will also increase: the World Bank estimates that 143 million people will be forced to migrate to other regions of their countries by 2050 because of climate change. The situation regarding international refugees is at least as dire, with estimates as high as 150 million by 2050 and one billion by the end of the century.⁵ We are already wit-

Resources for Teachers and Students

Earth Day

Activities, including games and other materials: earthday.org/ (available in nine languages) and earthrise2020.org/

Mother Earth Day Events of UN (in Arabic, English, French, Spanish, Russian and Chinese): un.org/ar/events/motherearthday/

Climate Change

Games and other materials about climate change, including weather, atmosphere, water (oceans & freshwater), energy, plants & animals, see NASA ClimateKids: climatekids.nasa.gov

Scientific and policy reports from the Intergovernmental Panel on Climate Change (IPCC): ipcc.ch

United Nations resources (available in six languages): unenvironment.org/ar/explore-topics/climate-change/about-tghyr-almnakh

Environmental Issues and Biological Diversity

Learn more to reduce emissions and “drawdown” greenhouse gasses from the atmosphere. See: Paul Hawken, *Drawdown:*

The Most Comprehensive Plan Ever Proposed to Reverse Global Warming (2017): drawdown.org

For scientific information about biological diversity, see: Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), *Global Assessment Report on Biodiversity and Ecosystem Services* (2019): ipbes.net/news/ipbes-global-assessment-preview

For discussions of many different aspects of ecosystem services, see: UNEP, *Millennium Ecosystem Assessment* (Washington, D.C.: Island Press, 2005): millenniumassessment.org

For information on plastics, see: Center for International Environmental Law (CIEL) et al., *Plastic & Health: The Hidden Costs of a Plastic Planet* (2019): ciel.org/wp-content/uploads/2019/02/Plastic-and-Health-The-Hidden-Costs-of-a-Plastic-Planet-February-2019.pdf.

For material regarding similarities between animals and humans, see: Christopher Lloyd, illustrated by Mark Ruffle, *Humanimal: Incredible Ways Animals Are Just Like Us!* Maryland: What on Earth Books, 2019.

nessing profound human suffering and political turmoil associated with migration. Environmental migration is treated differently than other types of migration under international law, which currently offers asylum protection to refugees fleeing persecution, war, or violence. Climate change is exacerbating many of those problems and creating new ones.

Earth has already warmed more than 1°C since the beginning of the Industrial Revolution and additional warming is inevitable because the atmosphere is already charged.⁶ The 2018 U.S. National Climate Assessment concluded that climate change will cause serious threats to human health and the environment in the United States. The Arctic is warming two to three times as fast as the rest of the planet, with severe impacts on human rights, including the rights to life, property, culture of the indigenous people living there, and in a manner causing troubling positive feedback loops (accelerating temperature rise). As a result of climate change, we can reliably expect: sea level rise; increased acidification and decreased productivity of oceans; increased frequency and severity of storms; increased flooding and wildfires; changes in the ranges of disease vectors; stresses on agricultural production such as unpredictable and shorter growing seasons; reduced access to food and clean water; increased human displacement; increased conflict over natural resources; and political turmoil. Possible tipping points might also be reached, such as stopping the flow of warm water in the Gulf Stream, which could put virtually all of northern Europe, Canada and the northern United States under ice.

The authors documenting these conditions and making these predictions are not hacks. The reports were prepared transparently by professionals who are among the most highly qualified and reputable scientists in the world, relying on peer-reviewed research. Despite inevitable uncertainties, there is no reason to doubt these conclusions: they will happen. There is a different kind of rule of

law at work here, that of Nature, which is not subject to political considerations. To quote Leonardo da Vinci: “Nature never breaks her own laws.”

Environmental problems are not new, of course. Destructive irrigation practices caused salinization of soils in the Fertile Crescent, the cradle of civilization, thousands of years ago. Aristotle (384–322 BCE) bemoaned the degradation of soil quality in Ancient Greece. The Roman engineer Vitruvius warned against using lead in water pipes 2100 years ago. What is very different now is the scope and severity of threats.

Indeed, many of the effects highlighted above are already being felt. There is no need to focus on abstract questions of rights of future generations, as important as they are. This realization is significant in its own right in indicating that remedial action needs to be taken now, but there also is an important corollary. Some people believe that they, their children and even their grandchildren will

be OK, because they will have sufficient resources and be sufficiently well educated to weather the storm. That belief is wrong. Disease vectors, hurricanes, floods and wildfires do not respect walls around the wealthy, nor do political upheaval and environmental migrants. Youths realize this, as evidenced by the worldwide demonstrations by young people inspired by Swedish teenager Greta Thunberg; Alexandria Villaseñor, who at age 14 brought Greta’s “Fridays for Future” to the United States; and hundreds of thousands of others. UN Secretary General Anthony Gutierrez said, “I refuse to be an accomplice to the destruction of our children’s future.”

Challenges Facing Young People: Knowledge & Empowerment

The environmental problems identified above are inter-related in terms of causes, effects, and solutions. Deforestation is an easy example: forests purify water, prevent erosion, support biodiversity, are a



The advertisement features a central logo for the Summer Institute for Teachers, with the text "SUMMER INSTITUTE FOR TEACHERS" and "FEDERAL TRIALS AND GREAT DEBATES IN UNITED STATES HISTORY" below it. The background is a cloudy sky. Below the logo are three images: a man and a woman in a meeting, a group of people in front of a classical building, and a man in a suit speaking. At the bottom, the dates "June 21 - 26, 2020" and location "Washington, D.C." are displayed in large, bold text. Below that, it says "Applications due March 2, 2020." and includes logos for the American Bar Association (ABA) and the Federal Judicial Center (FJC). The final line of text is "Apply at ambar.org/summerinstitute".

sink for carbon, and provide many other ecosystem services. Thus, if young people work on one environmental problem, for example by planting trees on denuded land, they are most probably simultaneously addressing these other issues as well. Given the differences in local environments, cultures, and other conditions, it is inevitable that young people in various places will be attracted to different environmental problems and use different approaches. And, of course, activities appropriate for five-year-olds differ from those that will interest teenagers. Fortunately, there are a vast multitude of ways for young people to take action at personal and local levels. Examples of such activities are listed in the next section of this article.

Youth need to be educated not just about the magnitude of environmental problems but about the viability of solutions.

Dealing with today's environmental problems requires both local action and international cooperation, however. The old aphorism, "Think globally, act locally" still applies and provides fertile ground for young people to become involved in meaningful activities at the local level. However, we also need to "Think locally and act globally." Many, perhaps most, young people realize this. At the same time, they are painfully aware that national and international leaders are not taking action commensurate with the scale and urgency of the problems.

Instead of the bold changes needed to limit global warming to 1.5 degrees C, every major emitting nation is continuing to *increase* its emissions. As students become aware of this, it often becomes a source of deep distress. In a world of 7.8 billion people, with trillions of dollars tied up in companies that produce and consume fossil fuels, it is hard for them

to see what difference the actions of one student, one family, one community can make. This can lead to paralysis, or at least *solastalgia*. Solastalgia is a form of mental or existential distress caused by environmental change. Reversing climate change will be a 50-year slog. It is important not to give up in frustration.

The late Senator Robert F. Kennedy once paid tribute to the cumulative importance of individual acts:

It is from numberless diverse acts of courage and belief that human history is shaped. Each time a man stands up for an ideal, or acts to improve the lot of others, or strikes out against injustice, he sends forth a tiny ripple of hope, and crossing each other from a million different centers of energy and daring those ripples build a current which can sweep down the mightiest walls of oppression and resistance.

Kennedy was encouraging South Africa students to stand up against apartheid, but his sentiments are equally relevant to student climate activism.

The climate crisis is a slope, not a cliff. There will be "tipping points" along the way, and some of them can lead to irreversible harm. But there is no point—ever—where it is appropriate to give up. If we fail to limit warming to 1.5 degrees, humanity and the whole web of life will suffer greatly, but the world will not end. Species will go extinct; people will die. It is still worth fighting to peak at 1.6, 1.7, or 1.8 degrees. Long-term, carbon can be removed from the atmosphere and the planet will be restored to equilibrium. The sooner we begin reducing annual emissions, the sooner we can drive emissions to zero, and then into negative territory.

In sum, youth need to be educated not just about the magnitude of environmental problems but about the viability of environmental solutions. Teachers must play a central role in ensuring that students find effective, rewarding ways

to engage. Earth Day at 50 provides an action-oriented opportunity for teaching how positive, constructive engagement can help make the world a better and safer place.

What Can Young People Do?

There are countless ways that young people can get involved in combatting climate change and other environmental threats, depending on their age, location, and interests. Examples of activities that might be appropriate include online and offline options. For example, they can fill in an online form to promise to take action involving behavioral change such as being a vegetarian for a week and not wasting food; not using plastic products; choosing energy-efficient computers, printers and desk lamps; sorting and recycling waste; choosing to walk, bicycle, or use public transit whenever possible; choosing clothes made from organic materials and using them for a long time; and keeping temperature no lower than 26°C (79°F) in air-conditioned rooms in summer.

Other options transcend personal behavior and could include such things as taking an energy inventory of their school buildings and equipment and advocating with their school board for zero energy schools; encouraging their parents to get a home energy audit and to buy super-efficient appliances; and organizing activities in support of Earth Day 2020. Some students may feel that public advocacy is appropriate, such as participating in student climate strikes and directly advocating public policies that would lead to a carbon neutral economy.

These are only a few examples. The sources listed in the next section provide examples of relevant ideas and teaching materials. Many more are available online and in libraries. Ultimately, young people will make their own choices on how to engage based on their knowledge and circumstances. Teachers can make an enormous difference in enabling that process. ●

Notes

1. London Zoological Society and World Wildlife Fund, Living Planet Report, 2018.
2. Intergovernmental Panel on Climate Change (IPCC).
3. Cornell Lab of Ornithology and American Bird Conservancy, 2019.
4. Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.
5. IPCC.
6. IPCC, 1.5°C Report, www.ipcc.ch/sr15/.

The authors wish to thank Qin Lin, Ruiyue Sun, and Jingran Wang for their assistance in preparing this article.

Lessons on the Law is a contribution of the American Bar Association’s Division for Public Education. The mission of the Division is to advance the rule of law and its role in society. Content in this article does not necessarily reflect the official policy of the American Bar Association, its Board of Governors, or the ABA Standing Committee on Public Education.

DENIS HAYES was national coordinator of the first Earth Day; founded the Earth Day Network; directed federal solar research in the administration of President Jimmy Carter; taught engineering at Stanford University; practiced law in Silicon Valley; and now serves as CEO of the Seattle-based Bullitt Foundation where he developed the world’s greenest office building.

DANIEL MAGRAW was President and CEO of the Center for International Environmental Law and Director of the International Environmental Law Office at the U.S. Environmental Protection Agency. He now is a Senior Fellow at the Foreign Policy Institute and Professorial Lecturer at the Johns Hopkins University School of Advanced International Studies.

HERE’S YOUR SOLUTION!

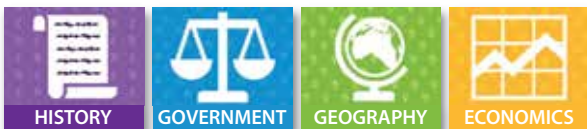


SOCIAL STUDIES

An enriched, innovative new learning curriculum pioneered by VLS that is:

- Aligned with C-3 scaffolding in all states
- Operates with historical units in sequence
- Integrated with primary and secondary documents
- INQUIRY BASED and TOTALLY DIGITAL

Each K6-12 unit is based on one of the four National Strands and may be used for up to a full semester.



For Full Story See Brochure Tab:
www.VLSeducation.com



See Us On Facebook



How Does VLS Work?

Students/Home Page

- Become SSI investigators
- Professional video hosted by peers
- Interactive activities
- Develops key skills and core disciplines
- Family, community research activities
- Downloadable “Think Sheets”

Teachers (Password)

- Learning objectives and standards alignment in teacher-ready lesson plans with assignments
- Rubrics with scoring
- Wide spectrum of teacher tools
- Professional development video included

And so much more!