

SCIENCE ON EARTH DAY 2017

By Eugene B. Benson, MACC Executive Director

“We've arranged a civilization in which most crucial elements profoundly depend on science and technology.” Carl Sagan

It has come to this. Science matters. It matters enough that people are coming to its defense. For this year's Earth Day, April 22, the Earth Day Network and the March for Science are co-organizing a rally and teach-in on the National Mall in Washington, D.C., and a march through the streets of our nation's capital to defend the vital role that science plays in our communities and the world. According to Stat News, the only Ph.D. trained scientist in Congress will join the March in Washington on April 22, “not as a Democratic member of Congress but as a scientist.” Many organizations are chartering buses to take them to Washington for the day. Locally, people will rally for science on Boston Common on April 22. An internet search yields many Earth Day activities planned throughout Massachusetts.

Scientific knowledge and natural resources protection often advance hand-in-hand. As science learns more about the natural world and how our actions affect the environment, we use the information it provides to adjust our individual behaviors -- and as a society we create norms and rules to guide and compel our actions, informed by the science. Sometimes science explains what we can see, smell, touch, or taste. Some of us remember the smog-filled skies, acrid smell, and stinging eyes and throat caused by polluted air before the Clean Air Act became law. Science was able to tell us how dangerous that air was to human health. Now we need science to explain at what level the air pollution we cannot see, smell, or taste (such as fine particulate matter) is harmful to us. Sometimes, as with climate disruption, the impacts of our behavior may accumulate for decades before becoming obvious and so our reliance on good science to tell us what to expect is important. Our knowledge of the role that wetlands play in the environment has advanced markedly since the days when filling in wetlands was accepted and even encouraged. We now understand the broad range of ecological services wetlands provide (flood control and mitigation, carbon sequestration, water quality protection, and wildlife habitat, to name a few), have continued to develop wetland science, and have created norms, rules, and technologies to protect wetlands because we know they provide real value to us.

It should come as no surprise that the actions and words of the Trump Administration are the catalyst for the movement to defend science. President Trump's first budget would slash \$5.8 billion, or 18 percent, from the National Institutes of Health and \$900 million, or about 20 percent, from the Energy Department's Office of Science, which runs basic research at the national laboratories. It would also cut the budget of the Environmental Protection Agency by 31 percent. The New York Times reported on March 29 that the science and technology advisor positions in the administration remain vacant. The President himself has called climate change a hoax and many of his appointees either deny climate science is real or claim it is too uncertain to be used to set government policy.

It should also be no surprise that the fossil fuel industry and its allies would seek to undermine science, scientists, and even the journalists who report on the impact of fossil fuels on the climate. Science can make a real difference, especially when it is trusted and understood by the public. Perhaps the most well-known attacks on science were by the chemical industry on Rachel Carson after she wrote *Silent Spring*, which documented the detrimental effects of the widespread use of pesticides on the environment. Those attacks, however, gave the book greater prominence, got more people reading and talking about its findings, and helped bring about the environmental movement a few years later.

We at MACC continue to count on science in our work. We recently completed and submitted a proposal for funding to review the scientific literature on wetland buffers and to compile a source book that commissions would be able to use to regulate work in buffer zones, based on the latest science. We will know in a few months if the proposal is funded. We will let you know too.

I am troubled by this quote attributed to Carl Sagan: “We live in a society exquisitely dependent on science and technology, in which hardly anyone knows anything about science and technology.” He’s right that we are dependent on science and technology, but what about “hardly anyone knows anything?” Does he underestimate us? I think so. I would guess if you are reading this blog you know at least something about science and technology. Whether Carl Sagan would amend his statement or defend it, I would guess he would be delighted to see people coming together and taking to the parks and streets on April 22 to defend science. I intend to be there, not because our scientific knowledge is perfect (it never is), but to send the message that important decisions about our country, our planet, and the environment should be informed by science rather than by rejection of science, and, to quote Marshall McLuhan, because “There are no passengers on spaceship earth. We are all crew.”

If you have read this far, I have a question for you: What should be the role of conservation commissions in this new era in which the federal government cannot be counted on to support or rely on science and when the Trump Administration appears eager to hollow out the agencies that perform science research, provide science research funding, and administer our environmental laws? What can conservation commissioners and agents do? Email me and we can start a blog about it.