



Shutdowns, Cuts, and Sequesters: Impacts to the Scientists Conducting Government Funded Research

Gretchen Goldman, Christina Carlson, & Melissa Varga
CCarlson@ucsusa.org

On October 1, the government went into a partial shutdown due to Congress' failure to approve a budget for Fiscal Year 2014. As a result, the government furloughed hundreds of thousands of federal workers and federal contractors and it suspended a variety of programs and services, all actions that will have many profound and long-lasting impacts—from food stamps to education to healthcare. But a less noticed yet vitally important impact has been the toll that these actions have taken on the scientific enterprise in the US.

The shutdown hit a scientific community already hindered by budget cuts and the sequestration of all government spending that took effect in the spring of 2013. These reductions resulted in a decrease in the number and size of grants awarded, the closure of labs, and a loss of researchers through lay offs. The government shutdown caused science to suffer even more. The government employs thousands of scientists and much scientific research is reliant upon federal funding to operate, particularly in the cases of large projects that need significant financing up front, or for basic scientific research—projects that could have benefits in the future but no immediate gain that might attract private funding sources.

In the wake of the shutdown commencement, the Union of Concerned Scientists sent email inquiries to our 20,000-strong Science Network about the impact of the federal government shutdown on their lives and scientific work. The members are scientists and other technical experts from across the country, encompassing a huge variety of scientific fields, and a wide range

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of ages and experiences. Within hours, we had received over 50 stories, testifying to the breadth of impacts being felt across the scientific community, from PhD students to senior researchers. These replies detail lost research, lost opportunities, lost money, and significant lost morale. Below is a sampling of stories from

these scientists and the restrictions they have faced.

Field Research Jeopardized

A young researcher described a “once-in-a-lifetime opportunity to travel to Antarctica” to do field work on long-term climate variations that was likely to be cancelled. She lamented the “millions of dollars that will have been squandered on lost work and hollow plans, sending a ripple effect into the future as researchers are forced to wait an entire year” before the weather will accommodate field research. She notes that her personal disappointment with “an opportunity like that slipping through my hands, after rearranging my life to be deployed pales” when compared to the sense of loss felt by researchers who have dedicated their entire lives to this research.

US Fish and Wildlife Service employees and students conducting wildlife and habitat research and monitoring had their operations suspended or cancelled. The researchers had to “be dropped off in high-cost urban sites, some without funds or [a] way home.”

University scientists shared that “doctoral students and post-docs have been locked out of their offices...since the federal government owns the research facilities.” This is not mere inconvenience. It means that “people's dissertation research...now lays in ruins” and many “will not graduate, their years of work and money wasted if they cannot prove their research.”

Many government scientists were not allowed to even access email, much less their labs. One scientist noted that his “direct supervisor (or research leader) confiscated all laptop computers on the day of the shutdown” which clearly affected his “ability to maintain professional contacts and meet [his] professional deadlines (e.g. revising and submitting science), managing students, etc.”

Scientific Sharing and Collaboration Disrupted

Many researchers shared dismay about the loss of scientific discussion and knowledge



transfer that resulted from the shutdown. One scientist said that, though he is no longer a federal employee, “several scientists with whom I work are federal employees and cannot work with me during this period.”

Many scientists who were supposed to represent the US at international meetings were unable to participate. The chair of an internal science panel related to water resources and climate shared that all participation by US federal scientists was cancelled for two October meetings that have been planned for over a year. The meetings and planning went on without “involvement of US scientific leaders.” Another scientist recently attended a meeting about ecological restoration “where there were over 40 cancellations.” Yet another explained that the shutdown has “brought our work on the National Climate Assessment to a standstill.”

Access to Information Terminated

The shutdown effects reach far beyond those directly funded or employed by the federal government. Scientists who rely on data from government sources did not have access to government databases. A senior scientist explained “almost all of the NASA data sites that I use for my research have been shut down. This seriously impacts my analyses.”

Another scientist that works for a small NGO relies completely on government data because “we do not have the IT/computer infrastructure to run our model locally. The [government-run] supercomputer and all our data are currently unavailable because of the shutdown.” This means that their projects were on hold.

Scientific Publications Slowed

The inability of so many scientists to even access their emails significantly slowed the peer-review process and compromised journal publication. One university climate-scientist that received a “stop work” order on a government

funded project is also “co-editing a book, with a federal agency colleague. Work on the book, which is due in December 2013 to the publisher, has ground to a halt.” Furthermore, government-funded scientists were not even allowed to submit final reports to agencies, which “prevents the public from learning about research that they have already funded.”

Changing Career Choices

Finally and very troubling, these setbacks are causing researchers to have second thoughts about their career choices and for whom they will work. A senior scientist who uses government data for his work predicted, based on the morale of colleagues, that “in the long term the US lead in scientific research and technology will suffer.” The reality of this fear was echoed in many of the responses we received from early career scientists. A research entomologist with the US Department of Agriculture, Agricultural Research Service commented that “It seems time to consider other ways of paying my salary, if the government puts so little value on science.” This could mean seeking work outside of government agencies or outside the country entirely. Another early career scientist noted, “This whole situation is making me think long and hard about my long-term career goals” and causing her to weigh the risks of seeking future funding from the US government. She explains that “moving to a country like the UK or other parts of Europe which have much more stable funding structure[s] and overall support for scientists may be a better career choice for my husband and I who are both scientists.”

The Future of Science in the US

Whether these disruptions will have long-term impacts on scientists’ career choices and the vitality of scientific research in the US remains to be seen. Government agencies both employ and fund some of the top scientific minds and research in the US, and we cannot afford government shutdowns like these. The progress of science depends on consistent, reliable institutions to support and stay with projects over long periods of time. A scientific enterprise that is subject to the volatility of Congressional votes and political sentiment cannot provide these opportunities for scientists. As a nation, if we would like to continue to be globally competitive in pushing scientific frontiers, we need to provide the tools and infrastructure to support those who can drive us there.