

Science under Trump

Voices of Scientists across 16 Federal Agencies

HIGHLIGHTS

The Trump administration is sidelining science from decisionmaking and weakening the federal scientific enterprise. A survey of scientists at 16 federal agencies, conducted by Union of Concerned Scientists and Iowa State University in early 2018, demonstrate significant challenges related to the development and use of science to protect the public from environmental and public health threats at some federal agencies. These challenges include censorship and self-censorship, political interference in scientists' work, low morale, decreased agency effectiveness, and dwindling resources. However, the damage varies widely across agencies, with the EPA and DOI faring poorly and the FDA and NOAA doing relatively well. Political and civil service leadership have significant influence on the state of science at their agencies.

A year and a half into the Trump administration, its record on science policy in several agencies and departments is abysmal. Evidence rolls in daily that this administration is undermining long-established processes for science to inform public policy (Carter et al. 2017). Regulated industries possess increasing power to influence what science is used in policymaking, while public voices are increasingly excluded. In many cases, administration officials have clamped down on public communication and retaliated against experts who share information on politically contentious issues. Some officials have overruled the recommendations of scientific experts, dismissed independent science advisors, and hindered data collection and public access to scientific information.

The administration often disregards science in and excludes agency scientific staff from decisionmaking even when legally bound to consider such evidence. Aided and abetted by Congress, it delays or attempts to eviscerate science-based rules designed to safeguard the American people, protect workers from toxic work environments, and help communities prepare for the impacts of climate change.

Reporters and government investigations have documented scores of examples that demonstrate how the Trump administration has diminished the crucial



In early 2018, the Union of Concerned Scientists and the Center for Survey Statistics and Methodology at Iowa State University surveyed more than 63,000 federal scientists from 16 different agencies. The survey asked about a wide range of issues regarding that state of science in federal agencies including workforce reductions, adherence to scientific integrity policies, and communication of scientific work to the media and the public.

role of science in our democracy on many issues. Yet science and science-based policymaking has proceeded without interference on others. Further, there are significant disparities regarding how different departments and agencies treat science and scientists, with some agencies moving aggressively to limit the use of science and others recognizing its utility.

Yet how do the scientists working for the federal government perceive this administration's record on science policy? How do their views mesh with or contradict the findings of investigators and journalists?

To help gauge the extent and impact of the administration's attacks on science across the government, and to strengthen the voice of federal scientists in public policy, the Union of Concerned Scientists (UCS) and the Center for Survey Statistics and Methodology at Iowa State University surveyed more than 63,000 scientific experts employed by the federal government. Conducted in February and March 2018, the survey addressed issues of scientific integrity at 16 agencies. Detailed methodology and results can be found online at www.ucsusa.org/2018survey.

The survey follows and builds on others conducted by UCS since 2005, reaching thousands of federal scientists across multiple federal agencies under the administrations of President George W. Bush and President Barack Obama. Those earlier surveys offer additional insights into the current status of government scientific integrity, and, in some cases, comparisons can be made with the working environment for federal scientists under the Trump administration. More information on past surveys can be found at www.ucsusa.org/surveys.

In our 2018 survey, federal scientists echo many concerns raised by media reports on the Trump administration's treatment of science. Scientists report widespread political interference in the science policy process. At some federal agencies, the situation for scientists is worse than it was during the Bush or Obama administrations.

An overwhelming number of federal scientists report that various factors are hollowing out agency workforces.

Federal scientists are doing the best they can, but many report that they lack the resources to inform agency decisions most effectively.



Federal scientists report that they lack the support and resources they need to perform their job effectively, and that political influence is affecting the integrity of decision-making in their agencies.

This inhibits the ability of scientists to do their jobs effectively, and it compromises their agencies' missions, they report. Scientists also report that the influence of leaders, particularly political appointees and the White House, presents one of the greatest barriers to protecting public health and responding to environmental threats.

Many survey respondents also report censorship of their work, especially work related to climate change. Moreover, the survey provides evidence that scientists fear speaking up when they witness violations of scientific integrity. Many feel they must censor themselves, and they report working in environments inconducive to fulfilling the science-based missions of their federal agencies.

We should ensure that our country's scientists work in places where they can thrive so they can more effectively protect the public's health and safety as well as the nation's—and the world's—environment. Yet taking the survey results together, respondents report that the effectiveness of their agencies, divisions, and offices is low, as are job satisfaction and overall morale. In responses to open-ended questions, many scientists expressed the view that leadership, including officials lacking scientific expertise, are wasting taxpayer dollars through counterproductive reorganizations and clamp-downs on scientists' ability to share their knowledge with the public.

Federal scientists are doing the best they can, but many report that they lack the resources and institutional support to inform agency decisions most effectively. That said, the federal government's scientific workforce is remarkably resilient, and the survey findings paint a considerably more positive picture at some agencies. Encouragingly, scientists

perceive significantly less political pressure at the Food and Drug Administration (FDA) and the National Oceanic and Atmospheric Administration (NOAA), where political leadership has been less likely to interfere with or sideline scientists' work. And at all agencies, scientists are aware of—and feel that the agencies generally adhere to—their scientific integrity policies, even while they identified numerous issues that fall beyond the scope of those policies.

Workforce Reductions Inhibit the Ability of Agencies to Fulfill Their Science-Based Missions

Scientific experts within the federal government are essential to ensuring that the best available science informs policymaking, yet many key science positions remain vacant. As of June 2018, the 18th month of his administration, President Trump had filled 25 of the 83 government posts that the National Academy of Sciences designates as “scientist appointees” (Partnership for Public Service and Washington Post 2018—the source is updated near daily). President Obama had filled 63 such positions and President Bush had filled 51 positions only 12 months into their administrations (NAS 2008).

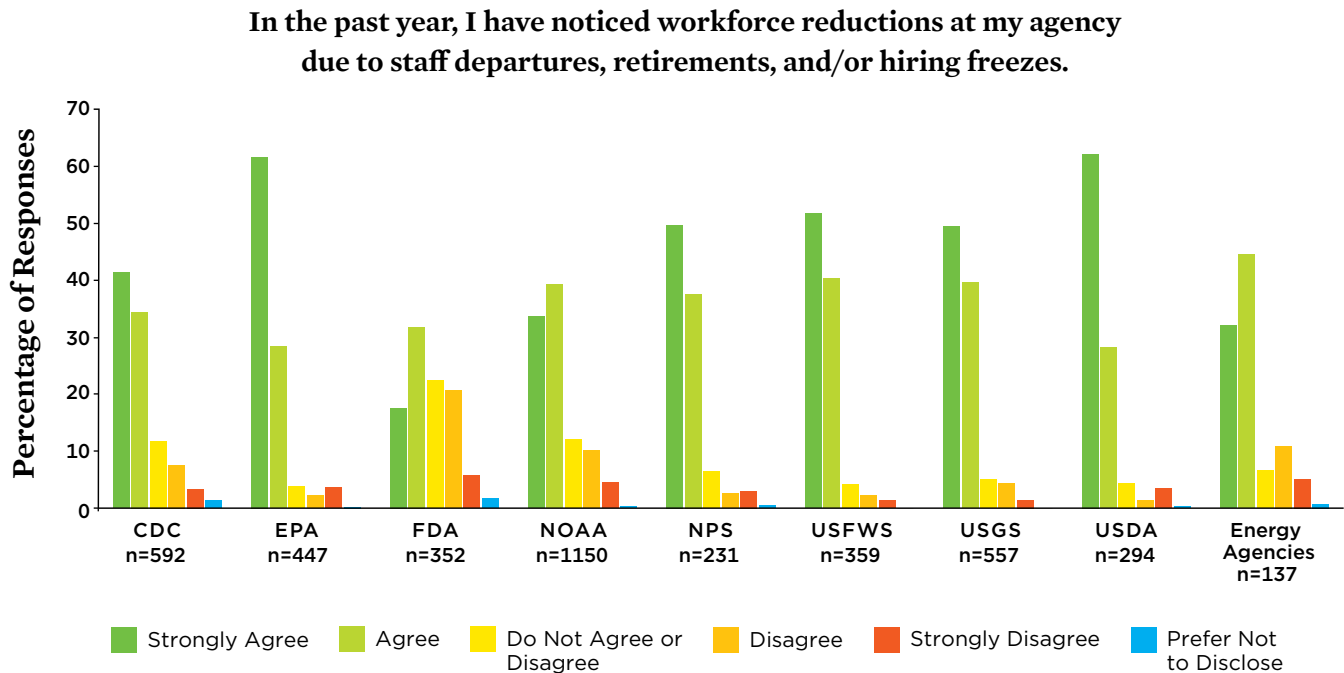
Not only are many positions left vacant, but concern is also widespread that science-based federal agencies are losing critical expertise and capacity due to early retirements, buyouts, sustained hiring freezes, and other departures of scientists from government service. For example, President Trump’s budget proposal has included a 20 percent reduction in staffing at the Environmental Protection Agency (EPA); the agency’s staffing—14,162 employees as of January 2018—is already the lowest in 20 years (Cama 2018). Other agencies have reported staff reductions, although concrete numbers are hard to come by.

The UCS survey results support concerns of diminished staffing levels, with most respondents reporting workforce reductions (Figure 1):

- Across all agencies, 79 percent of respondents (3,266) reported workforce reductions during the last year due to staff departures, retirements, or hiring freezes.
- Of the respondents who noticed workforce reductions in the past year, 87 percent (2,852) reported that such reductions made it more difficult for their agencies to fulfill their science-based missions.

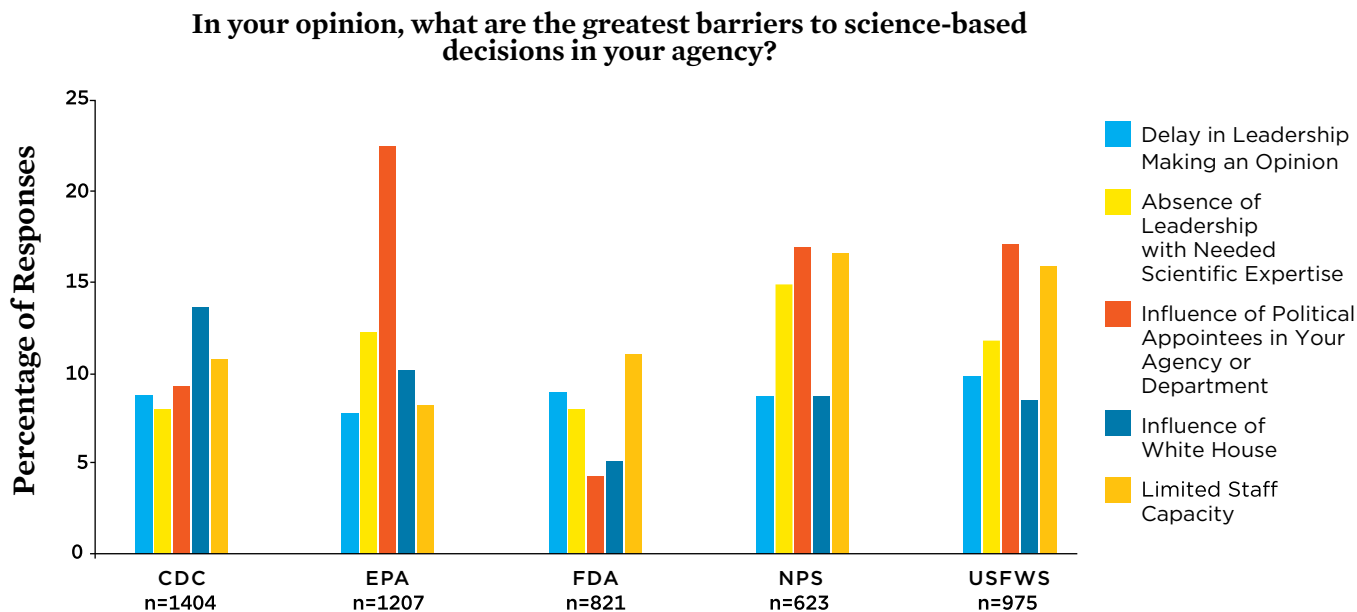
A loss of expert scientists means a loss of independent science and slower progress on critical issues. A respondent

FIGURE 1. Workforce Reductions over the Past Year



Across all agencies surveyed, respondents strongly agreed that they had noticed workforce reductions. More than 90 percent of responding federal scientists at the EPA agreed that the agency’s workforce had been reduced over the past year.

FIGURE 2. Top Barriers to Science-Based Decisionmaking



Survey respondents reported that the top barriers to science-based decisionmaking related largely to leadership and limited staff capacity. Survey respondents could choose up to three barriers out of 14 options: delay in leadership making a decision; absence of leadership with needed scientific expertise; uncertainty or disagreement with the science; influence of political appointees in your agency or department; influence of the White House; influence of Congress; influence of other agencies; influence of industry stakeholders; influence of nongovernmental interests (such as advocacy groups); inefficient decisionmaking process within the agency; potential discrepancy with existing rules and regulations; uncertainty of agency jurisdiction; complexity of the issue; limited staff capacity; other; and prefer not to disclose. This figure reflects the five barriers most frequently identified by survey respondents.

from the US Fish and Wildlife Service (USFWS) summed up the problem: “Many key positions remain unfulfilled, divisions are understaffed, and process has slowed to a crawl.”

Political Interference Is a Barrier to Scientists’ Work

Scientists surveyed widely agree that the influence of political appointees within their agencies and by the White House presents a major barrier to science-based decisionmaking (Figure 2).

This finding is consistent with ongoing reports of political interference in government science over the past 18 months. For example, at the EPA and at agencies within the Department of Interior, the administration has upended the process of reviewing science-based grants and cooperative agreements. Too often, the work of scientists is evaluated based on its alignment with Trump administration priorities

“Political appointees at the department level require review and approval of all research grants over \$50,000. This impedes new and ongoing research. They react negatively to any surprises; hence, even positive research findings often are not publicized. They want to know who is funding and who is a partner on every research project. They want to see a list of all proposed publications well in advance.”

— Survey respondent from the US Geological Survey

Leadership can strongly influence federal scientists' morale, job satisfaction, and overall effectiveness, and reports of low morale were generally associated with respondents' perceptions of poor leadership.

rather than on its scientific merits (Eilperin 2018). “Political appointees at the department level require review and approval of all research grants over \$50,000,” noted a respondent at the US Geological Survey (USGS). “This impedes new and ongoing research. They react negatively to any surprises; hence, even positive research findings often are not publicized. They want to know who is funding and who is a partner on every research project. They want to see a list of all proposed publications well in advance.”

Further, the White House inappropriately influences scientific work. For example, in early 2018, it delayed publication of a study measuring the health effects of per- and polyfluoroalkyl substances (PFAS), a group of hazardous chemicals found in drinking water and household products throughout the United States (Hiar 2018). Emails released to UCS several months later revealed that the EPA, the White House Office of Management and Budget, and the Department of Defense strong-armed the Agency for Toxic Substances and Disease Registry into censoring the report, stating its release would be “a potential public relations nightmare.” When asked to describe any potential problems related to scientific integrity, one EPA survey respondent stated, “[The government] and industry combine to let [the PFAS chemical perfluorooctanoic acid] enter the marketplace too easily without clearly recognizing the consequences to human health and the environment.” This type of undue influence is not unique to the EPA:

- Across all agencies surveyed, 20 percent of respondents (2,266) selected either “influence of political appointees in your agency or department” or “influence of the White House” as a top barrier to science-based decisionmaking.
- 32 percent of EPA respondents (319) listed either “influence of political appointees in your agency or department” or “influence of the White House” as a top barrier to science-based decisionmaking; about 25 percent of respondents at the National Park Service (NPS) (159), USFWS (248), and USGS (347) listed these same top barriers. This is particularly notable at the USGS, which, as a nonregulatory agency, had experienced lower levels of political interference in previous years.
- Across all agencies, 50 percent of respondents (1,947) either agreed or strongly agreed that the level of consideration of political interests hindered the ability of their agencies to make science-based decisions. At the Centers for Disease Control and Prevention (CDC), 48 percent of respondents (255) were in agreement; at the USFWS, 69 percent of respondents (235) agreed; 76 percent of NPS respondents (168) agreed; and 81 percent of EPA respondents (345) agreed.
- Across all agencies, 31 percent of respondents (1,208) agreed or strongly agreed that the presence of senior decisionmakers who come from regulated industries or who have a financial interest in regulatory outcomes inappropriately influenced their agencies’ decisionmaking. 70 percent of EPA respondents (293) agreed, as did more than 40 percent of respondents at both the USFWS (137) and NPS (94).

Job Effectiveness, Job Satisfaction, and Morale Are Low at Many Agencies

According to several sources, the morale of federal employees has declined. Possible contributing factors include: poor leadership, hiring freezes, proposed budget cuts to many programs and areas of work, and a brief government shutdown. At least two surveys prior to the UCS survey documented a decrease in morale among federal workers under this administration: one conducted by the largest federal workers’ union, the American Federation of Government Employees, and another by the Partnership for Public Service, a nonprofit organization. In the survey conducted by the Partnership for Public Service, two-thirds of government employees reported low morale (Naylor 2018; Partnership for Public Service 2017).

The 2018 UCS survey found similar responses. A higher percentage of respondents from the EPA, NPS, USFWS, US Department of Agriculture (USDA), and USGS reported low morale relative to scientists surveyed at other federal agencies. In a comparison with earlier UCS surveys, twice as many EPA respondents rated morale as either poor or extremely

poor in 2018 than in 2007, while it has generally been reported as fair or good over time at both the USFWS and FDA (Figure 3).

The results suggest that leadership can strongly influence federal scientists' morale, job satisfaction, and overall effectiveness, and reports of low morale were generally associated with respondents' perceptions of poor leadership. "The general attitude and morale are negative," noted a respondent from the Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy (EERE). "This is a leadership problem and it comes from the very top. The attitude is derisive and dismissive. This can make it tough to go to work every day. Government employees are just people."

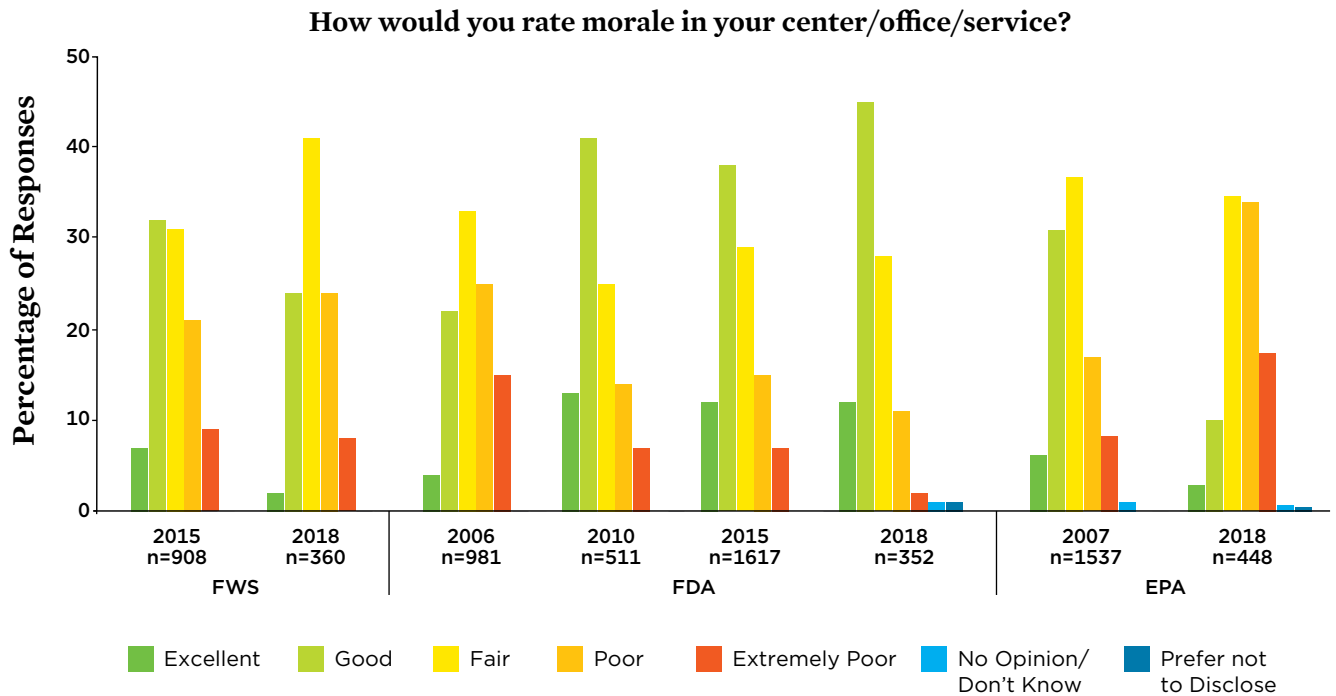
Poor leadership was reported by more than 39 percent of respondents at the CDC (552), EPA (632), NPS (305), and USFWS (457); in each case, the respondents reported that leadership issues presented major barriers to science-based decisionmaking. In contrast, FDA respondents reported higher morale than at other agencies: only 26 percent of FDA respondents (215 respondents) reported leadership as a barrier (Figure 2). FDA respondents generally supported the

"The general attitude and morale are negative. This is a leadership problem and it comes from the very top. The attitude is derisive and dismissive. This can make it tough to go to work every day."

— Survey respondent from the Department of Energy

work of their commissioner, Scott Gottlieb. One FDA scientist stated, "Fortunately, our new commissioner has knowledge of drug development and we did not get someone from outside the field (such as some of the potential candidates who would have come from Silicon Valley). Although I would likely disagree with many of Dr. Gottlieb's political positions, he is competent and cares about FDA's reputation."

FIGURE 3. Reported Morale at Agency Offices and Divisions and across Time



Morale appears to be at an all-time low at the EPA (Goldman et al. 2015; Donaghy et al. 2010; Donaghy, Grifo, and McCarthy 2008; UCS 2006). Federal scientists surveyed by UCS generally reported morale to be fair in their divisions or offices at the USFWS and the FDA over time.

A majority of respondents reported decreased job effectiveness and satisfaction in addition to low morale. Fewer respondents reported that effectiveness and morale had improved. For many federal scientists, this may be due to a hostile work environment, with a large body of research showing that negative work cultures can decrease productivity (Seppala and Cameron 2015). Additionally, many scientists reported that their agencies did not provide them with adequate time and resources to keep up with advances in their professions, such as by attending scientific conferences and meetings. One EPA scientist noted, “There is so much fear and anxiety that my coworkers and management are afraid to make a decision or those above them are afraid for us to make a decision.” EPA scientists weren’t the only ones to speak out:

- Across all agencies, 39 percent of responding federal scientists (1,624) reported that the effectiveness of their divisions or offices had decreased over the past year. The percentage varied across agencies, from 64 percent of EPA respondents (284) reporting decreased job effectiveness compared with 16 percent of FDA respondents (58).
- 15 percent (643) reported an increase in the effectiveness of their divisions or offices.
- 46 percent (1,921) reported an overall decrease in personal job satisfaction. Such reports were most common at the EPA (65 percent; 292 respondents), NPS (61 percent; 140 respondents), and USFWS (58 percent; 210 respondents).

“Fortunately, our new commissioner has knowledge of drug development and we did not get someone from outside the field (such as some of the potential candidates who would have come from Silicon Valley). Although I would likely disagree with many of Dr. Gottlieb’s political positions, he is competent and cares about FDA’s reputation.”

— Survey respondent from the Food and Drug Administration



Top: Kathryn Hansen/NASA; Bottom: USFS

Scientific evidence clearly shows that climate change is happening, that human activity is causing it, and that we’re already feeling the effects in the forms of drought, wildfires, and sea level rise. Yet the Trump administration continues to deny the facts. Survey respondents report censorship of the term “climate change” at multiple agencies, a directive that may cause scientists to censor their own work even further to avoid unwanted attention from agency leadership.

- 45 percent (1,804) of respondents disagreed when asked if they were provided with adequate time and resources to keep up with advances in their profession.
- 37 percent of federal agency scientists surveyed (1,550) reported no change in their personal job satisfaction over the past year; 591 (14 percent) reported an increase in job satisfaction.

Censorship Is an Issue, Especially When It Comes to Climate Change Science

Censorship related to climate change has made headlines since the start of the Trump administration. Right out of the gate, the administration took all mentions of climate change off the White House website. Various agencies followed suit, as has been well documented, removing climate change language from their webpages and suggesting to staff that future communication was forbidden (EDGI 2018). A superintendent for Joshua Tree National Park, which the NPS manages, was flown to Washington, DC, to be reprimanded for tweeting about how climate change would affect the park. Among all

agencies surveyed, NPS respondents were most likely to report climate change censorship. “We’ve been told to avoid using words like climate change in internal project proposals and cooperative agreements,” said one NPS respondent. “Although some projects can be adequately described without using words like climate change, some are harder to do so, and it puts a pall on work involving climate change, which is central to managing the parks.”

Across agencies, scientists reported omitting work on issues related to climate change even without explicit orders to do so—in other words, they self-censored their work. A scientist from an energy agency stated, “Although there are staff that work hard to maintain the core work and mission amidst ever-changing guidance on messaging (what words trigger leadership attention), it has become overly burdensome and it would be understandable for staff to, in essence, give up and limit scientifically sound work to avoid conflicts. In my opinion, it is not the majority that continues to creatively think of how to maintain scientific integrity given the current environment, but rather takes the path of least resistance and I honestly cannot blame anyone who does.”

In these cases, scientists may get an indirect message that it would be better for themselves and their colleagues to avoid any unwanted attention from agency leadership that might come with mentioning politically contentious topics. Even in the absence of explicit political interference, such self-censorship inhibits scientific expression among the federal workforce, depriving the public and decisionmakers of access to accurate scientific information. The possibility that hundreds of government scientists may be choosing to censor their scientific work and its communication is a strong danger sign about the state of science in the federal government. Scientists reported censorship across four agencies that work on climate change:

- 18 percent of respondents at agencies that work on climate change (631 respondents) agreed or strongly agreed that they had been asked to omit the phrase “climate change” from their work. The highest numbers were 47 percent at the NPS (100 respondents) and 35 percent at the EPA (147 respondents).

- 20 percent (703 respondents) reported that they had avoided working on climate change or using the phrase “climate change” without explicit orders to do so. Responses on what is, in effect, self-censorship varied by agency. The highest levels were 32 percent at the USGS (169 respondents) and 30 percent at the EPA (134 respondents).

Scientific Integrity Policies at Federal Agencies Are Functioning—But Challenges Loom

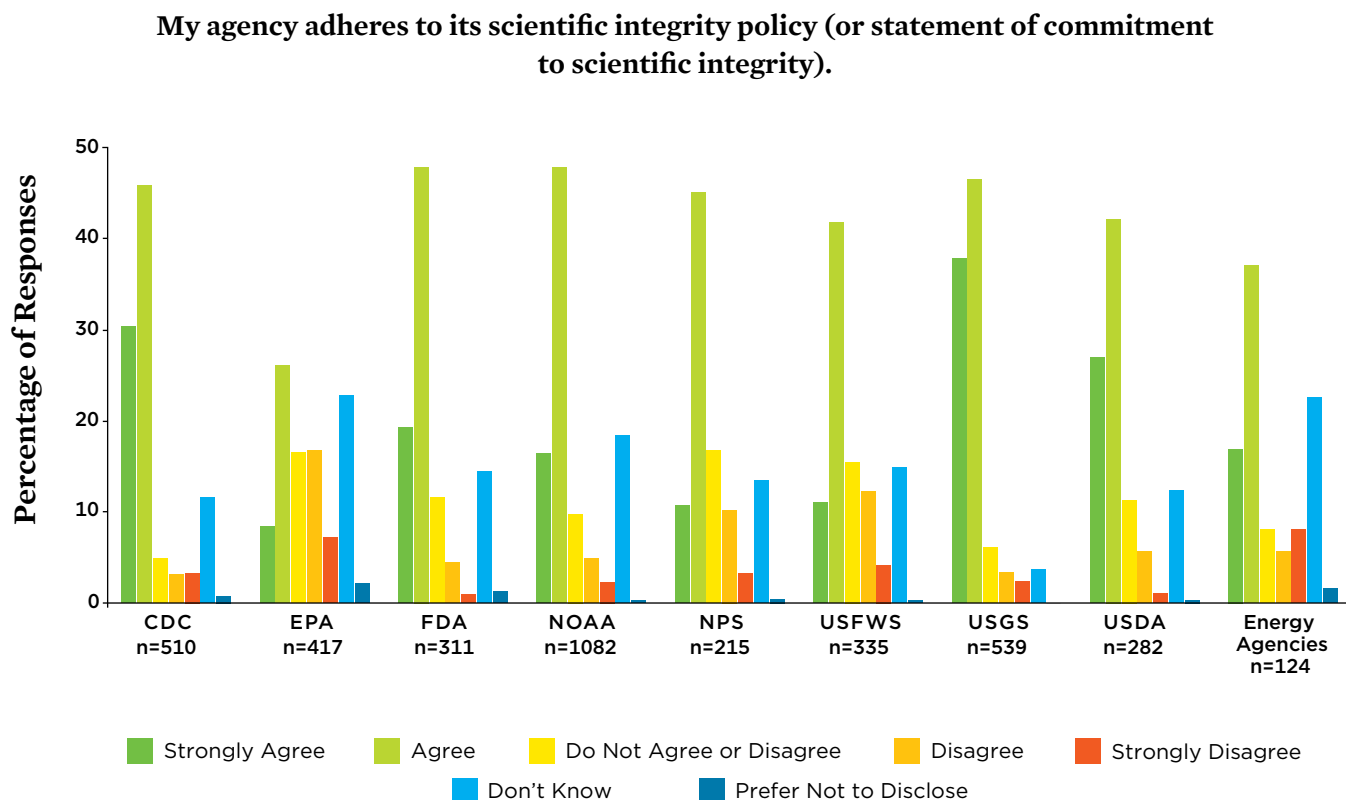
At least 28 federal agencies have scientific integrity policies that guide how science should be protected in agency decisionmaking; how federal scientists should conduct and communicate science; how conflicts of interest should be minimized and disclosed; and how scientific disagreements should be resolved. Many agencies also charge scientific integrity officials and committees with implementing these policies. Survey results indicate that many respondents believe their agencies adhere to these policies, and they report receiving training on their whistleblower rights and scientific integrity (Figure 4). Nevertheless, only a minority of scientists would feel comfortable reporting a violation of the scientific integrity policy:

- 64 percent of respondents (2,452) agreed that their agencies adhered to their scientific integrity policies.
- 60 percent of respondents (2,274) agreed that they had received adequate training regarding the contents and procedures in their agencies’ scientific integrity policies.
- 42 percent of respondents (1,384) said they would be willing to come forward and report a scientific integrity issue and would trust their agencies to deal with the issue fairly.
- 68 percent of respondents (2,609) agreed that they had been adequately trained on whistleblower rights and protections.

“Although some projects can be adequately described without using words like climate change, some are harder to do so, and it puts a pall on work involving climate change, which is central to managing the parks.”

— Survey respondent from the National Park Service

FIGURE 4. Adherence to Agency Scientific Integrity Policies



Most federal scientists reported that their agencies adhere to their scientific integrity policies.

Advancing Scientific Integrity in the Federal Government

When government scientists cannot do their jobs effectively, the public suffers. Every day, Americans depend on the work of experts across the federal government to protect health and safety across our nation. It is crucial that the federal government upholds scientific integrity and that taxpayer-funded scientists are free to do their jobs effectively.

The general adherence to scientific integrity policies at federal agencies is a positive note, yet overall the survey results suggest that inappropriate influences loom over federal science. While the survey results suggest that most scientific experts have received adequate training on both scientific integrity policies and whistleblower protections, the need to improve the state of science in the government extends far beyond the scope of such policies. The interference of political leaders in scientific work and the manipulation of well-established decisionmaking processes seem to be diminishing

the morale, job satisfaction, and effectiveness of responding federal scientists. As one USGS scientist stated, “USGS scientific integrity guidelines are among the best in the federal service. They are robust and followed by the agency. What happens at the political level is another story.”

Survey results show that when employees perceive that political leaders support an agency’s mission, such as at the FDA, work effectiveness and overall morale increase. However, results from the UCS survey suggest that political leaders are creating work environments that diminish the overall effectiveness of scientific staff, instill fear in the workforce, and lead to counterproductive self-censorship. As a NOAA scientist stated, “Appointed officials are openly climate change deniers. Climate change has been removed from [White House] webpages. The administration has pulled out of the Paris Climate Accord. Many scientists are reluctant to speak up about science-based evidence that supports climate change observations, let alone discuss how our science can support efforts to build a [nation prepared for extreme

This state of affairs is unfortunate and dangerous: the public deserves, indeed requires, access to vital scientific information.

weather].”

Survey results also suggest that communication issues extend beyond censorship of science to the right of scientists to speak about their work to the public, the news media, and at professional meetings. Many survey respondents feel challenged by review processes added over the past year and a half regarding agency communication of their work. An EPA scientist stated, “EPA employees [have to] undergo a significantly higher degree of review and multiple levels of approval to get information out to the public and this task is time consuming and leads to a time lag for providing timely and important information to the communities within our nation.” Many scientists reported feeling that the administration had added mandatory review processes to prevent the public release of anything that ran counter to its agenda.

This state of affairs is unfortunate and dangerous: the public deserves, indeed requires, access to vital scientific information. Leadership should work hand in hand with government scientists to ensure that sound science informs policies vital to the American people’s health and safety. Basic principles include the need to:

- demonstrate respect for the value that science instills in decisionmaking processes by transparently allowing independent expertise to inform agency decisionmaking and by publicly supporting agency science;
- through ethics and recusal requirements, reduce the perception that regulated industries influence agency scientific work and decisionmaking, and prohibit political appointees with clear ties to industry from influencing policies on which they lobbied prior to joining the

administration;

- foster an environment of trust among agency scientists by creating spaces conducive to effective work, and reassure scientists that the focus of their work should be its quality, not the political acceptability of results;
- fully utilize agencies’ peer-review processes for quality control and assurance rather than censoring results or terminology that are legitimate products of the scientific process;
- encourage scientists to speak freely to the public and the news media about their work;
- remove barriers to the timely dissemination of scientific information to the public as much as possible, particularly when related to matters of public health and safety;
- provide the appropriate resources and time for federal scientists to pursue professional development opportunities, including attending and speaking at professional meetings; and
- continue to facilitate training on scientific integrity policies and whistleblower protection rights.

Methodology Details

Sixteen federal agencies were chosen for the survey sample based on their science-based missions, commitment to scientific integrity, and history of past scientific integrity challenges:

- Agricultural Research Services (ARS)
- Bureau of Ocean Energy Management (BOEM)
- Bureau of Safety and Environmental Enforcement (BSEE)
- Centers for Disease Control and Prevention (CDC)
- Economic Research Service (ERS)
- Food and Drug Administration (FDA)
- National Agricultural Statistics Service (NASS)
- National Highway Traffic Safety Administration

Leadership should work hand in hand with government scientists to ensure that sound science informs policies vital to the American people’s health and safety.

(NHTSA)

- National Institute of Food and Agriculture (NIFA)
- National Oceanic and Atmospheric Administration (NOAA)
- National Park Service (NPS)
- Office of Energy Efficiency and Renewable Energy (EERE) at the Department of Energy (DOE)
- US Census Bureau
- US Environmental Protection Agency (EPA)
- US Fish and Wildlife Service (USFWS)
- US Geological Survey (USGS)

Due to low response rates, the ARS, ERS, NASS, and NIFA were combined to form a “USDA” category. Similarly, the EERE, BOEM, and BSEE were combined to form an “Energy Agencies” category.

The survey received Iowa State University Institutional Review Board approval (IRB #18-017).

Federal agency staff lists were obtained through publicly available online staff directories and Freedom of Information Act (FOIA) requests. FOIA requests were filed for government agencies with an incomplete online employee directory or no directory at all. FOIA requests resulted in full staff lists from the BOEM, BSEE, NHTSA, NPS, and USFWS. The DOE, EPA, and Census Bureau did not respond to FOIA requests within six months. For these agencies, lists were obtained from either incomplete or inside sources.

From these staff lists, each employee was identified as holding a scientific or nonscientific position based on job title and office within an agency. For the purposes of this survey, a scientist was considered a person whose job involved a significant level of science, including but not limited to research, analysis, modeling, inspection and oversight, and science policy. Full-time federal employees, contractors, and associates were included in the survey; fellows, students, and interns were not. When available, the specific office in which the employee worked was used to exclude large amounts of people who were unlikely to perform the above scientific functions. Common non-scientific offices such as administration, finance, information technology, and facility maintenance were consistently excluded from lists.

As an additional check on job type, the first question on the survey instrument asked respondents to indicate the percentage of time spent on science. Respondents answering zero were routed to the final survey question and excluded from aggregate survey statistics.

Potential survey respondents were sent invitations to fill out the survey via their work email addresses. Participants



Michael J. Emmerth/DOE

The American public deserves policies and decisions rooted in sound science. When the Trump administration puts up barriers to scientific integrity in our federal agencies, they put our health and safety at risk.

could complete the survey in any of three ways: online via a link provided in the email, by calling a phone number, or by clicking a link to download a PDF survey instrument that they could complete by paper and mail in. Each email to a potential respondent included a unique identifier associated with the online survey link. Participants completing phone or paper surveys were prompted to supply this code for quality control purposes. The survey was open for responses between February 12, 2018, and March 26, 2018; potential respondents received reminder emails almost weekly. A total of 4,211 scientists responded to the survey; response rates ranged from 19 percent for the USGS to 2 percent for the Census Bureau where scientific staff could not be identified from the sample.

Job titles were not available at the EERE, EPA, or Census Bureau when the survey was administered; therefore, it was not possible to identify survey participants with scientific expertise. For these reasons, response rates for these agencies may be skewed lower relative to other agencies.

Survey items included multiple-choice as well as open-ended response types. All quotes contained in this report come directly from open-ended responses.

Jacob Carter is the research scientist in the Center for Science and Democracy at the Union of Concerned Scientists. **Gretchen Goldman** is the research director in the Center. **Charise Johnson** is the research analyst in the Center.

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