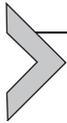




Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



Politics v. science: How President Trump's war on science impacted public health and environmental regulation

Romany M. Webb^{a,*} and Lauren Kurtz^b

^aSabin Center for Climate Change Law, New York, NY, United States

^bClimate Science Legal Defense Fund, New York, NY, United States

*Corresponding author: e-mail address: rmw2149@columbia.edu

Contents

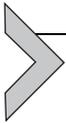
1. The Silencing Science Tracker	66
2. Anti-science actions under Trump	67
2.1 Censorship and self-censorship	67
2.2 Personnel changes	69
2.3 Budget cuts	70
2.4 Research hindrance	71
2.5 Bias and misrepresentation	72
2.6 Agencies affected	74
3. The Biden administration's approach to science	74
4. Where to from here? Restoring the role of science	76
References	77

Abstract

During his campaign for president, Joe Biden vowed to “end the politics and follow the science” when dealing with the COVID-19 pandemic and other public health and environmental crises. He was immediately criticized by then President Trump, who cast “listen[ing] to the scientists” as something only a fool would do, and warned that it would result in a “massive [economic] depression.” It is hardly surprising that Trump would take that position. After all, the Trump administration routinely prioritized economic interests, and worked tirelessly to remove what it viewed as unnecessary regulatory burdens on economic activity. The Trump administration regularly suppressed, downplayed, or simply ignored scientific research demonstrating the need for regulation to protect public health and the environment. The Biden administration has vowed to reverse course, but faces challenges in doing so due to the widespread assault on science led by former President Trump.

The Trump administration's efforts to undermine science are documented in the Silencing Science Tracker, an online database, which records anti-science actions taken

by the federal, state, and local governments. Drawing on more than four years of tracker data—from Trump’s election to Biden’s inauguration—we show that the Trump presidency fundamentally changed how federal government agencies perform, use, and communicate scientific research. While the Biden administration has taken initial steps to undo some of those changes, it still has significant work to do to restore the role of science in federal government decision-making. Its task is made more difficult by the public distrust of science engendered by the Trump presidency.



1. The Silencing Science Tracker

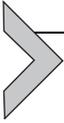
The Silencing Science Tracker is a joint project of the Climate Science Legal Defense Fund¹ and Columbia Law School’s Sabin Center for Climate Change Law.² The tracker records reported attempts by federal, state, and local government actors to restrict or prohibit scientific research, education, or discussion, or the publication or use of scientific information (“anti-science actions”). According to the tracker, 346 anti-science actions were taken by the federal government between President Trump’s election and President Biden’s inauguration (i.e., from November 8, 2016 to January 20, 2021). During the same period, a further 156 anti-science actions were taken by state and local governments, but those actions are not discussed in this chapter.

Federal actions recorded in the tracker are categorized as follows:

1. government censorship;
2. self-censorship;
3. budget cuts;
4. personnel changes;
5. research hindrance; and
6. bias and misrepresentation.

Within the above categories, the tracker records actions taken by the federal executive and Congress, except legislative proposals. Many tracker entries involve multiple types of action or actors. For the purposes of this analysis, those entries were separated into their component parts, resulting in 428 unique instances of anti-science behavior, each of which involves one type of action (i.e., from the list above), performed by one actor (e.g., a specific executive agency). The figures shown below were calculated based on that total. There is reason to believe that many anti-science actions were not reported and thus are not captured in the tracker, and therefore the total represents a conservative estimate of anti-science actions taken between November 2016 and January 2021. In a survey conducted by the Office

of Inspector General for the Environmental Protection Agency (EPA), nearly 400 EPA scientists said they had observed violations of the agency's scientific integrity policy in the second half of 2018, but did not report them due to "fear of retaliation, belief that reporting would make no difference, perceived suppression or interference by Agency leadership, and belief that politics and policy outweigh science."³ Given the Trump administration's widespread and continued attacks on science, similar concerns were likely also held by scientists at other federal agencies throughout the second half of the Trump presidency. It is, therefore, reasonable to assume that a large number of anti-science actions went unreported.



2. Anti-science actions under Trump

During his first presidential campaign, Donald Trump promised to "ensure... total [scientific] transparency and accountability without political bias."⁴ That was a promise he didn't keep. As detailed further below, during his four years in office, former President Trump led a concerted effort to undermine federal scientific research, particularly research relating to climate change. The Trump administration's attacks on climate science dovetailed neatly with one of the former President's key goals: to roll-back climate regulations that scientific research shows would advance public health and environmental quality. Faced with this contradiction, the Trump administration sought to restrict access to scientific information or cast doubt on its veracity, thereby limiting public understanding of the issues and reducing possible opposition to the administration's plans. Those actions created a culture of fear among federal scientists, leading some to voluntarily suppress or distort information at odds with former President Trump's agenda. Many of the scientists who did speak out were removed from their positions, while others were prevented from conducting further research on topics deemed "controversial," such as climate change.

2.1 Censorship and self-censorship

During President Trump's time in office (including the transition period), there were 154 documented instances of federal government censorship of scientists, and 19 instances of scientists engaging in self-censorship. Approximately 72% involved the suppression of information about climate change. This began even before President Trump took office. In November 2016, staff at Centers for Disease Control and Prevention (CDC) deleted content discussing the relationship between climate change and human

health from at least four webpages, reportedly to “avoid drawing the new president’s ire.” Similar changes were made to other federal agency websites after President Trump took office. In total, during the Trump administration, climate change and other scientific information was removed from the websites of twelve federal bodies, in most cases at the direction of administration officials.⁵ This made it more difficult for Americans to educate themselves about climate change and other scientific issues, which may, in turn, have made it easier for the Trump administration to act on those issues by allowing them to “fly under the radar” or obscuring the consequences of administration action.

The Trump administration also removed scientific information from regulatory documents. For example, in or around August 2018, administration officials deleted information⁶ on the local health effects of climate change from regulatory documents supporting the weakening of greenhouse gas emissions controls. Again, this helped the Trump administration advance its deregulatory agenda, including by casting doubt on the need for climate regulations. Trump administration officials also attempted to suppress information that could lead to demands for stricter regulation (e.g., because it shed additional light on the impacts of climate change or demonstrated the inadequacy of that existing attempts to address it).⁷ This could have lasting consequences, making it more difficult for the current and future administrations to take regulatory action, due to a lack of information or sense of urgency.

This type of scientific censorship was widespread during the Trump administration, having been documented at 20 federal bodies—more than any other type of anti-science action. Notably however, the number of documented instances of government censorship declined slightly over time, falling by 26% from 2017 to 2018, a further 18% in 2019, and 10% more in 2020. This is not necessarily good news; it may simply reflect the fact that less science was done because of personnel changes, budget cuts, and other anti-science actions taken by the Trump Administration. There is also reason to believe that the attacks on science created a culture of fear among federal employees and led some to self-censor. A survey conducted in 2016—before President Trump’s election—found that 72% of EPA scientists felt they could “openly express scientific opinions about the Agency’s scientific work without fear of retaliation.”⁸ That number dropped to just 57% in a repeat survey conducted in 2018—almost two years into Trump presidency.⁸ In the 2018 survey, over 600 scientists said their “management chains do not consistently stand behind scientific staff who put forth

scientifically defensible positions, including those that may be controversial.”⁸ It is, then, hardly surprising that some scientists would choose to self-censor. However, while understandable, such behavior could undermine public trust in science by creating the impression that scientists “pick and choose” what to disclose and regularly “hide” information. Both self- and government censorship may also cause the public to question whether research conducted or overseen by federal scientist is truly impartial and lead some to believe that such research is inherently political and thus untrustworthy.

2.2 Personnel changes

In addition to suppressing information, the Trump administration also sought to restrict or prevent further climate change research, including by removing⁹ and reassigning¹⁰ federal government scientists. This reduced the capacity of key science agencies. For example, the U.S. Geological Survey—the science arm of the U.S. Department of the Interior (DOI)—lost 150 staff scientists or over 2% of its total scientific workforce between 2016 and 2020.¹¹ During the same period, 672 scientists left the Environmental Protection Agency (EPA), resulting in 6% decline its total scientific workforce.¹²

As well as reducing federal agencies’ internal scientific expertise, the Trump administration also sought to limit their access to outside experts. To that end, in June 2019, President Trump issued an Executive Order directing each federal agency to eliminate at least one-third of its current scientific advisory committees.¹³ Following the order, at least nine advisory committees across the Department of Commerce, Department of Energy,¹⁴ DOI,¹⁵ and EPA¹⁶ were terminated. Many other advisory committees (e.g., at EPA,¹⁷ DOI, and the Department of Labor¹⁸) were unofficially suspended or had their membership changed, with independent scientists replaced by industry representatives.¹⁹ In some cases, the new appointees lacked appropriate expertise, leading to concerns that the Trump administration was stacking advisory committees with favored “experts” who would be unable or unwilling to question the science behind its decisions. This was, perhaps, most obvious at EPA where members of the committee responsible for advising on particulate matter pollution themselves warned that they did “not have the breadth and depth of knowledge or expertise . . . necessary to adequately advise the EPA and to meet the statutory requirement for a thorough and accurate review” of existing or proposed particulate matter controls.²⁰

The dismantling of science advisory committees furthered the Trump administration's goal of rolling back climate change regulations in several ways. Perhaps most importantly, it limited external review of the scientific bases for the Trump administration's deregulatory actions, many of which were subsequently struck down by the courts on the basis that they were not supported by the available evidence or the result of reasoned decision-making. Expert review could have identified those flaws before action was taken, but the Trump administration seemingly thought it was more important to move ahead quickly and avoid the possibility of anyone questioning its approach. The administration's actions also had the effect of restricting federal agency and therefore public access to information that might justify action on climate change. That appears to have been the Trump administration's goal when it disbanded the Advisory Committee for the Sustained National Climate Assessment while it was in the process of drafting a report intended to assist government officials to use the National Climate Assessment in long-term planning.²¹ These types of actions again undermine trust in science by suggesting that scientific research and findings can be easily manipulated to achieve political ends.

2.3 Budget cuts

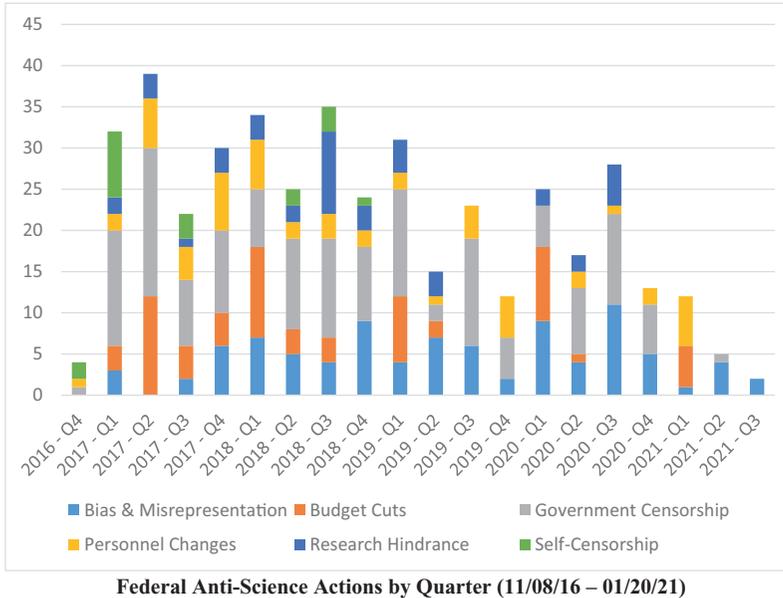
Under President Trump, federal agencies also faced pressure to reduce spending on scientific research, with the administration proposing deep across-the-board cuts in many budget cycles.²² Those proposals were largely rejected by Congress, which actually increased research funding during the Trump presidency.²² Nevertheless, many existing research programs had their funding cut or entirely eliminated. For example, in August 2017, DOI halted ongoing research into the health impacts of mountaintop removal coal mining, pending a review.²³ The research was officially cancelled in April 2018, with DOI claiming that it was "redundant."²³ A subsequent investigation found that DOI's then principal deputy assistant secretary for land and minerals management, Katherine MacGregor, had pushed for cancellation of the study after repeatedly meeting with the National Mining Association and companies engaged in mountaintop removal coal mining.²³ Another DOI official, Landon "Tucker" Davis, reportedly said the study should be cancelled because "science was a Democrat thing," reinforcing the idea that scientific research is inherently political.²³

Further supporting this view, under President Trump, some federal agencies also began requiring new research programs to be reviewed by political appointees to ensure they “promote the [Trump administration’s] priorities.”²⁴ It appears that appointees often used the review process to further deregulatory initiatives, blocking funding for research that might otherwise underpin environmental regulations. For example, EPA refused new grants for climate research.²⁴

2.4 Research hindrance

The Trump administration also restricted research in other ways. For example, in September 2018, DOI announced plans to destroy records relating to several of its program areas, including “biological resources and marine conservation.”²⁵ The records included, among other things, data on the size and location of various fish and wildlife populations that is used in researching species health.²⁵ In addition to limiting access to data needed for research, DOI also interfered with research processes. For example, scientists at DOI’s U.S. Geological Survey were directed not to model the impacts of climate change beyond 2040, presumably because the worst impacts are expected to occur in the second half of the century.²⁶

In total, in the time between President Trump’s election and President Biden’s inauguration, there were 43 documented examples of research hindrance. The number of incidents rose by 157% from 2017 to 2018—the largest year-on-year increase in any category recorded in the Silencing Science Tracker—before dropping in 2019 and then increasing to 2017 levels again in 2020. Again, many of the actions taken furthered the Trump administration’s deregulatory agenda, including by obscuring the harms caused by climate change and thus making it easier to justify the weakening of climate regulations. Other actions appear to have been intended to help President Trump politically. For example, during the COVID-19 pandemic, Trump administration officials pressured the Food and Drug Administration to approve new vaccines and treatments before they had been fully tested.²⁷ President Trump had previously accused the “deep state, or whoever, over at FDA” of intentionally slowing work to hinder his chances of re-election.²⁷ His supporters could easily have interpreted this to mean that FDA scientists were pursuing their own (anti-Trump) agenda and thus should not be trusted to deliver impartial advice about COVID-19 or other issues.

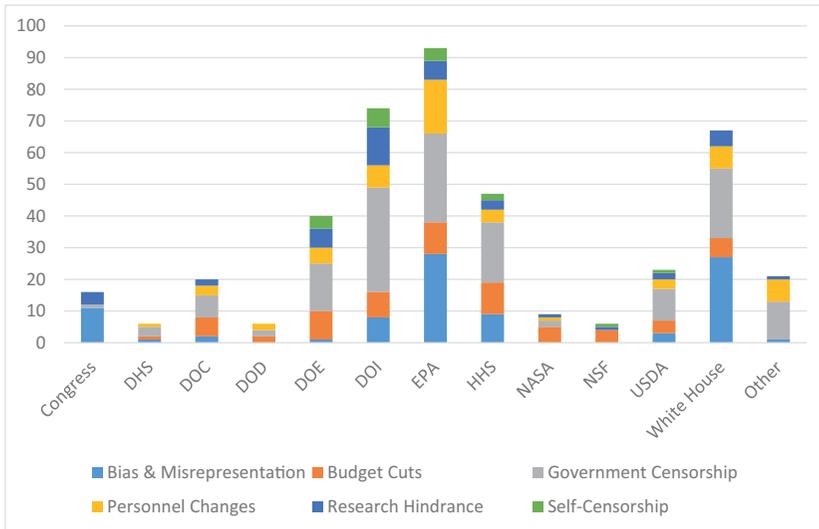


2.5 Bias and misrepresentation

Where the Trump administration could not block the conduct or publication of research (e.g., because it was been mandated by law), administration officials often engaged in bias and misrepresentation, undermining or simply dismissing research findings that did not support its agenda. One notable example was the administration’s response to the Fourth National Climate Assessment, which officials falsely claimed was “not data driven” and only modelled “the most extreme scenario,” rendering it untrustworthy; President Trump simply declared: “I don’t believe it.”²⁸

President Trump took a similar approach to politically inconvenient COVID-19 research. For example, when research called into question President Trump’s claims that hydroxychloroquine was an effective treatment for COVID-19, the former President accused the researchers of intentionally skewing the results by giving the drug to “very sick people … that were ready to die.”²⁹ President Trump did not point to any evidence to support these claims, but nevertheless labelled the research as “false,” and suggested it was politically motivated because that researchers were “obviously not friends of the administration.”²⁹ Again, his supporters were led to believe that scientific research is easily co-opted, and scientific facts open to interpretation.

Federal Anti-Science Actions by Agency (11/08/16 – 01/20/21)



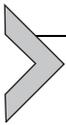
In total, in the period between President Trump's election and when he left office, there were 85 documented instances of bias and misrepresentation involving actors from Congress, the White House, and nine executive agencies. Government actors appear to have felt increasingly emboldened to engage in such behavior during the Trump presidency. Instances of bias and misrepresentation doubled from 2017 to 2018, before stabilizing in 2019 and then increasing again in 2020. The increase may be partly attributable to the Trump administration's widespread scientific censorship, which has limited public access to information that calls officials' views into question. Both government censorship and bias and misrepresentation became increasingly prevalent during the COVID-19 pandemic. In 2020, there were three times as many instances of bias and misrepresentation involving COVID-19 as there were for the next largest category, climate change. (In all other years, climate misinformation was the biggest category of bias and misrepresentation.) Moreover, as a result of other anti-science actions taken by the Trump administration, there were fewer federal scientists to advise and potentially constrain officials during the later years of the administration.

Regardless of the cause, the Trump administration's bias and misrepresentation played neatly into their attempts to dismantle science-based regulations, such as at EPA (where scientists' advice was restricted³⁰ or outright disregarded³¹) and DOI (which used faulty science to justify deregulation³²)

as well as other agencies like OMB (which instituted guidelines to limit how science can be used by regulatory agencies³³).

2.6 Agencies affected

These problems were widespread throughout the federal government during the Trump presidency. Anti-science behavior was documented at 23 federal bodies, including, unexpectedly, several agencies not highly focused on scientific research (e.g., the Department of Justice and Federal Communications Commission). Nevertheless, research agencies have borne the brunt of the attacks on science, with the largest number recorded at EPA (93 or 22% of the total) and DOI (74 or 17% of the total).



3. The Biden administration's approach to science

During his campaign and since being elected, President Biden has repeatedly stressed that his administration will “listen to science.”³⁴ He began putting his words into action even before taking office, for example, when he appointed Eric Lander as presidential science advisor.³⁵ In comparison, Trump did not appoint a science advisor until nearly two years into his term, later than any first-term president since at least 1976.³⁶ At the same time as he appointed Lander, President Biden also announced that the White House Office of Science and Technology Policy would become a Cabinet-level agency, giving it significantly more influence in administration decision-making.³⁷

Building on these early actions, on his first day in office, President Biden issued an executive order declaring that, when combating climate change, “the Federal Government must be guided by the best science and be protected by processes that ensure the integrity of Federal decision-making.”³⁸ One week later, President Biden issued an executive memorandum on “Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking”:

It is the policy of my Administration to make evidence-based decisions guided by the best available science and data ... Scientific findings should never be distorted or influenced by political considerations. When scientific or technological information is considered in policy decisions, it should be subjected to well-established scientific processes, including peer review where feasible and appropriate, with appropriate protections for privacy. Improper political interference in the work of Federal scientists or other scientists who support the work of the Federal Government and in the communication of scientific facts undermines the welfare

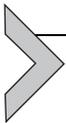
*of the Nation, contributes to systemic inequities and injustices, and violates the trust that the public places in government to best serve its collective interests.*³⁹

At President Biden's direction, in May 2021, the White House Office of Science and Technology Policy convened an interagency taskforce to assess the effectiveness of federal agencies' scientific integrity policies and recommend reforms.⁴⁰ That is an encouraging first step but significantly more work will be needed to undo the damage done by the Trump administration.

As well as broad efforts to restore the role of science in federal decision-making, the Biden administration will also need to undo many of the individual anti-science actions taken during the Trump presidency. For example, the scientists who left federal employment will need to be replaced, the policies requiring political review of research grants and publications will need to be changed, the federal advisory committees that were disbanded will need to be re-established, and the committees that continue to exist will need to be reviewed to ensure their members are qualified and independent. There is a lot to do and, so far, the Biden administration has only just scratched the surface. At the time of writing—nine months into the Biden presidency—the administration had only undone eleven of the Trump-era anti-science actions recorded in the Silencing Science Tracker. To be fair, some actions cannot be directly undone (e.g., the administration's repeated questioning of climate science). And, in other areas, there have been some encouraging steps forward. For instance, in March 2021, EPA Administrator Michael Regan dismissed all members of the agency's Scientific Advisory Board due to "process irregularities" in appointments during the Trump administration.⁴¹ New board members were appointed in August 2021 after extensive conflict of interest and impartiality tests.⁴²

Further work by the Biden administration could be hampered by distrust of science within some segments of the American public. In a survey conducted by the Pew Research Center in April and May 2020, only 39% of respondents said they had a "great deal" of confidence in scientists to act in the best interests of the public.⁴³ While that was up slightly from 2019 levels, when 35% of survey respondents said they had a "great deal" of confidence in scientists, Pew found growing partisan difference in trust levels.⁴³ In the 2020 survey, only 27 percent of respondents who identified as Republican expressed a great deal of confidence in scientists, compared to 52% for Democrats.⁴³ Black and Hispanic Americans have also been shown to have less trust in scientists than White communities.⁴⁴

There can be little doubt that the Trump administration stoked distrust in science in at least some segments of the public. Although previous administrations—both Republican and Democrat—had engaged in anti-science behavior, under President Trump, attacks on science were much more frequent and widespread. They also took on a different flavor. Whereas past presidents consistently upheld the value of scientific research, at least publicly, the Trump administration repeatedly questioned it. Trump administration officials described inconvenient research findings as “untrustworthy” and “unbelievable.”²⁸ Some have even suggested that all research is inherently partisan because science is “a Democrat thing.”²³ Those sentiments undermine the perceived value of independent research which could, in turn, encourage greater politicization of science and decrease reliance on it as a basis for environmental and other regulation.



4. Where to from here? Restoring the role of science

Clearly, there is a pressing need for reforms to better protect federal scientists, and restore public trust in the scientific process. Foremost among these is strengthening federal agency scientific integrity policies. Many federal agencies adopted such policies during the Obama administration, with the goal of ensuring that the science they use in decision-making is free from political interference.⁴⁵ The policies clearly fell short of their goals during the Trump administration.

The Trump presidency showed that, first and foremost, scientific integrity policies need stronger mechanisms to protect science against political interference. As of this writing, a number of agency scientific integrity policies do not actually prohibit political interference in science.⁴⁶ Other policies provide only limited protections, such as at DOI, where only public affairs officers are fully prevented from attempting to engage in political interference.⁴⁷ Many policies also need stronger protections for the rights of scientists to communicate their findings, which would allow scientists to freely share scientific information and correct misinformation.⁴⁸ And stronger requirements regarding conflicts of interest are needed across the board to help reduce regulatory capture by industry interests and other forms of corruption.⁴⁸ Finally, it must be easier and safer for scientists to navigate the scientific integrity complaint process—there is much to be done to clarify the processes and procedures for filing and investigating complaints, implement clear and meaningful penalties for violations, and protect complainants against retaliation.⁴⁹

Several initiatives are currently underway in both the Biden administration and in Congress, working towards these necessary improvements. Unfortunately, on both fronts, progress has been slower than one would like. As mentioned above, following a January 2021 Presidential Memorandum, the Biden administration convened a task force to review and revamp agency scientific integrity policies, but as the writing of this chapter, the task force is already several months behind its initial deadlines. Meanwhile, in Congress, a Scientific Integrity Act was first proposed in 2017 and has been reintroduced several times since then, but does not yet appear to be close to passage.

Despite the slow movement, it is important to remember that the tide is turning in a more pro-science direction. Unfortunately, history has shown that—at some point—the pendulum will likely swing back, at least to some degree. It is imperative that we use this time to institute stronger protections for federal science.

Data availability: All data analyzed in this study are available online at <https://climate.law.columbia.edu/Silencing-Science-Tracker>.

References

1. Climate Science Legal Defense Fund. <https://www.csldf.org/> [https://perma.cc/Z8W7-46BC]. Accessed October 25, 2021.
2. Sabin Center for Climate Change Law. <https://climate.law.columbia.edu/> [https://perma.cc/X2L5-D47K]. Accessed October 25, 2021.
3. Env'tl. Prot. Agency Office of Inspector General. Further Efforts Needed to Uphold Scientific Integrity Policy at EPA. https://www.epa.gov/sites/production/files/2020-05/documents/_epaig_20200520-20-p-0173.pdf [https://perma.cc/H8PZ-CA92]. Published May 20, 2020. Accessed October 25, 2021.
4. Science Debate. 2016 Presidential Q&As, <https://sciencedebate.org/sciencedebate-presidential-2016.html> [https://perma.cc/4DH2-EARH]. Accessed November 1, 2021.
5. The Sabin Center for Climate Change Law, The Climate Science Legal Defense Fund (herein after referred to as “Sabin Center & CSLDF”). Climate Change Information Removed from USDA Website. <https://climate.law.columbia.edu/content/climate-change-information-removed-usda-website> [https://perma.cc/HA84-P3H6]. Accessed October 25, 2021. Sabin Center & CSLDF. Climate Change Resources Removed from DOE Website. <https://climate.law.columbia.edu/content/climate-change-resources-removed-doe-website> [https://perma.cc/E26W-JVG6]. Accessed October 25, 2021. Sabin Center & CSLDF. Climate Change Information Removed from DOI Website. <https://climate.law.columbia.edu/content/climate-change-information-removed-doi-website> [https://perma.cc/4VR7-LJZZ]. Accessed October 25, 2021.
6. Sabin Center & CSLDF. References to “Climate Change” Removed from EPA Regulatory Impact Analysis. <https://climate.law.columbia.edu/content/references-climate-change-removed-epa-regulatory-impact-analysis-0> [https://perma.cc/59N3-PPP9]. Accessed October 25, 2021.
7. Sabin Center & CSLDF. Studies Showing Damages from Climate Change Buried by USDA. <https://climate.law.columbia.edu/content/studies-showing-damages-climate-change-buried-usda> [https://perma.cc/9CYN-H7GP]. Accessed October 25, 2021.
8. Env'tl. Prot. Agency, *supra* note 12, at 17.

9. Sabin Center & CSLDF. NSC Directorate for Global Health Security and Biodefense Dissolved. <https://climate.law.columbia.edu/content/nsc-directorate-global-health-security-and-biodefense-dissolved> [https://perma.cc/S7V7-RZ2T]. Accessed October 25, 2021.
10. Sabin Center & CSLDF. DOI Scientists Involuntarily Resigned. <https://climate.law.columbia.edu/content/doi-scientists-involuntarily-reassigned> [https://perma.cc/Y3A2-WYK2]. Accessed October 25, 2021.
11. Sabin Center & CSLDF. Fewer Scientists Employed by USGS During Trump Presidency. <https://climate.law.columbia.edu/content/fewer-scientists-employed-usgs-during-trump-presidency> [https://perma.cc/8TNU-2CML]. Accessed October 25, 2021.
12. Sabin Center & CSLDF. Fewer Scientists Employed by EPA During Trump Presidency. <https://climate.law.columbia.edu/content/fewer-scientists-employed-epa-during-trump-presidency> [https://perma.cc/6J25-TV3E]. Accessed October 25, 2021.
13. Sabin Center & CSLDF. One-Third of Advisory Committees to be Terminated. <https://climate.law.columbia.edu/content/one-third-advisory-committees-be-terminated> [https://perma.cc/QB3J-FWL5]. Accessed October 25, 2021.
14. Sabin Center & CSLDF. DOE to Terminate Three Energy-Related Federal Advisory Committees. <https://climate.law.columbia.edu/content/doe-terminate-three-energy-related-federal-advisory-committees> [https://perma.cc/N4HK-L28T]. Accessed November 1, 2021.
15. Sabin Center & CSLDF. Trump Administration Axes Federal Advisory Committee Focused on Invasive Species. <https://climate.law.columbia.edu/content/trump-administration-axes-federal-advisory-committee-focused-invasive-species> [https://perma.cc/9B2B-ABZ7]. Accessed November 1, 2021.
16. Sabin Center & CSLDF. EPA Environmental Laboratory Advisory Board Axed. <https://climate.law.columbia.edu/content/epa-environmental-laboratory-advisory-board-axed> [https://perma.cc/AD8X-SZXF]. Accessed November 1, 2021.
17. Sabin Center & CSLDF. EPA Science Advisory Board Unofficially Suspended. <https://climate.law.columbia.edu/content/epa-science-advisory-board-unofficially-suspended-0> [https://perma.cc/2WUL-V7QD]. Accessed October 25, 2021.
18. Sabin Center & CSLDF. DOL Advisory Boards Suspended. <https://climate.law.columbia.edu/content/dol-advisory-boards-suspended-0> [https://perma.cc/ZJ65-L7BR]. Accessed October 25, 2021.
19. Sabin Center & CSLDF. EPA-Funded Scientists Barred From Serving on Advisory Committees. <https://climate.law.columbia.edu/content/epa-funded-scientists-barred-serving-advisory-committees> [https://perma.cc/ZFZ7-8E94]. Accessed October 25, 2021.
20. Sabin Center & CSLDF. EPA Science Panel Disbanded. <https://climate.law.columbia.edu/content/epa-science-panel-disbanded-0> [https://perma.cc/2ASM-XFS6]. Accessed October 25, 2021.
21. Sabin Center & CSLDF. National Climate Assessment Advisory Committee Disbanded. <https://climate.law.columbia.edu/content/national-climate-assessment-advisory-committee-disbanded> [https://perma.cc/G86Y-WPES]. Accessed October 25, 2021.
22. Hourihan, M. Update: In the Age of Trump, Congress Keeps Boosting Science Funding. <https://www.aaas.org/news/update-age-trump-congress-keeps-boosting-science-funding> [https://perma.cc/T82E-NS3W]. Published December 17, 2019. Accessed October 27, 2021.
23. Sabin Center & CSLDF. Coal Mining Study Paused by DOI. <https://climate.law.columbia.edu/content/coal-mining-study-paused-doi> [https://perma.cc/6XCE-QDV8]. Accessed November 1, 2021.

24. Sabin Center & CSLDF. EPA Grants Reviewed by Political Appointee. <https://climate.law.columbia.edu/content/epa-grants-reviewed-political-appointee> [https://perma.cc/AE2R-ZL9N]. Accessed October 25, 2021.
25. Sabin Center & CSLDF. Scientific Data and Records to be Destroyed by DOI. <https://climate.law.columbia.edu/content/scientific-data-and-records-be-destroyed-doi-0> [https://perma.cc/W5P8-AN4N] Accessed October 25, 2021.
26. Sabin Center & CSLDF. USGS Scientists Ordered Not to Model Long-Term Climate Impacts. <https://climate.law.columbia.edu/content/usgs-scientists-ordered-not-model-long-term-climate-impacts> [https://perma.cc/5KDZ-6BF8] Accessed October 25, 2021.
27. Sabin Center & CSLDF. FDA Commissioner Pressured to Approve Coronavirus Treatment Before Clinical Trial Data Fully Analyzed. <https://climate.law.columbia.edu/content/fda-commissioner-pressured-approve-coronavirus-treatment-clinical-trial-data-fully-analyzed> [https://perma.cc/G27H-PBDZ]. Accessed October 25, 2021.
28. Sabin Center & CSLDF. Accuracy of National Climate Assessment Questioned by Trump Administration. <https://climate.law.columbia.edu/content/accuracy-national-climate-assessment-questioned-trump-administration-0> [https://perma.cc/6XTN-9UR4]. Accessed October 25, 2021.
29. Sabin Center & CSLDF. Accuracy of Scientific Study Questioned by President Trump. <https://climate.law.columbia.edu/content/accuracy-scientific-study-questioned-president-trump> [https://perma.cc/7PLR-K296]. Accessed October 25, 2021.
30. Sabin Center & CSLDF. Use of Science in EPA Air Pollution Programs Restricted. <https://climate.law.columbia.edu/content/use-science-epa-air-pollution-programs-restricted-0> [https://perma.cc/FG24-5RKV] Accessed October 25, 2021.
31. Sabin Center & CSLDF. EPA Scientists' Advice Disregarded. <https://climate.law.columbia.edu/content/epa-scientists-advice-disregarded> [https://perma.cc/L32E-7KWN]. Accessed October 25, 2021.
32. Sabin Center & CSLDF. FWS Decision to Delist Gray Wolf Based on Faulty Science. <https://climate.law.columbia.edu/content/fws-decision-delist-gray-wolf-based-faulty-science> [https://perma.cc/YH7Z-8RE5]. Accessed October 25, 2021.
33. Sabin Center & CSLDF. New Guidelines on the Use of Scientific Information Issued by OMB. <https://climate.law.columbia.edu/content/new-guidelines-use-scientific-information-issued-omb> [https://perma.cc/T5GB-3MQC] Accessed October 25, 2021.
34. Berger E. As it turns out, the Biden administration will listen to scientists. *Ars Technica*. <https://arstechnica.com/science/2021/01/as-it-turns-out-the-biden-administration-will-listen-to-scientists/> [https://perma.cc/E5EM-WQTE]. Accessed Nov. 1, 2021. See also Barrow B, Borenstein, S. Biden says his advisers will lead with 'science and truth.' *AP News*. <https://apnews.com/article/joe-biden-technology-francis-collins-022fc771e262e6f1c7e33ffe80e1d37b> [https://perma.cc/GW2D-82FM]. Accessed Nov. 1, 2021.
35. Mervis J, Kaiser J. Biden appoints geneticist Eric Lander as science adviser. *Science*. 2021. <https://www.science.org/content/article/biden-appoints-geneticist-eric-lander-science-advisor>. [https://perma.cc/HHC5-4SVJ]. Accessed Nov. 1, 2021.
36. Reardon S, Witze A. Trump Taps Meteorologist as White House Science Advisor. *Scientific American*. 2018. <https://www.scientificamerican.com/article/trump-taps-meteorologist-as-white-house-science-advisor/>. Accessed November 15, 2021.
37. Mervis J, Kaiser J. Biden appoints geneticist Eric Lander as science adviser. *Science*. 2021. <https://www.science.org/content/article/biden-appoints-geneticist-eric-lander-science-advisor>. Accessed November 1, 2021.

38. Executive Order 14008 of January 27. *Tackling the Climate Crisis at Home and Abroad*. 86 *Federal Register* 7619; 2021. <https://www.federalregister.gov/documents/2021/02/01/2021-02177/tackling-the-climate-crisis-at-home-and-abroad>. [https://perma.cc/MEQ7-C7HE]. Accessed November 1, 2021.
39. Memorandum of January 27. *Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking*. 86 *Federal Register* 8845; 2021. <https://www.govinfo.gov/content/pkg/FR-2021-02-10/html/2021-02839.htm>. [https://perma.cc/LM3V-PFB5]. Accessed November 1, 2021.
40. The White House. The Biden Administration's Scientific Integrity Task Force Seeks Ideas from the American People. <https://www.whitehouse.gov/ostp/news-updates/2021/06/25/the-biden-administrations-scientific-integrity-task-force-seeks-ideas-from-the-american-people/> [https://perma.cc/3QQY-DYWN]. Accessed November 1, 2021.
41. Environmental Protection Agency. Administrator Regan Directs EPA to Reset Critical Science-Focused Federal Advisory Committees. <https://www.epa.gov/newsreleases/administrator-regan-directs-epa-reset-critical-science-focused-federal-advisory> [https://perma.cc/F7YU-H2RV]. Accessed November 1, 2021.
42. Environmental Protection Agency. EPA Announces Selections of Charter Members to the Science Advisory Board. <https://www.epa.gov/newsreleases/epa-announces-selections-charter-members-science-advisory-board> [https://perma.cc/H254-4YDL]. Accessed November 1, 2021.
43. Funk C, Kennedy B, Johnson C. Trust in Medical Scientists Has Grown in U.S., but Mainly Among Democrats. <https://www.pewresearch.org/science/2020/05/21/trust-in-medical-scientists-has-grown-in-u-s-but-mainly-among-democrats/> [https://perma.cc/TZ9N-69TB]. Accessed October 27, 2021.
44. Funk C, Kennedy B, Tyson A. Black Americans have less confidence in scientists to act in the public interest. <https://www.pewresearch.org/fact-tank/2020/08/28/black-americans-have-less-confidence-in-scientists-to-act-in-the-public-interest/> [https://perma.cc/RSW9-5HQJ]. Accessed October 27, 2021.
45. Memorandum for the Heads of Executive Departments and Agencies on Scientific Integrity. <https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/scientific-integrity-memo-12172010.pdf> [https://perma.cc/8NJJ-LL3L]. Published December 17, 2010. Accessed November 1, 2021.
46. CDC Guidance on Scientific Integrity. https://www.cdc.gov/os/integrity/docs/CDCSIGuide_042516.pdf [https://perma.cc/F45C-LT8B]. Published April 2016. Accessed November 1, 2021.
47. Department of the Interior. Integrity of Scientific and Scholarly Activities. https://www.doi.gov/sites/doi.gov/files/uploads/305_dm_3_final_revised_si_policy_12-16-14.pdf [https://perma.cc/4P6D-KX8V]. Published December 16, 2014. Accessed November 1, 2021.
48. CSLDF. Guides to Scientific Integrity at Federal Agencies. <https://www.csldf.org/resource/guides-to-scientific-integrity-at-federal-agencies/> [https://perma.cc/GHQ8-FFSW]. Accessed October 27, 2021.
49. CSLDF. Model Scientific Integrity Policy for Agencies, Universities, and Other Research Institutions. <https://www.csldf.org/resource/model-scientific-integrity-policy/> [https://perma.cc/TZS6-CUU2]. Accessed October 25, 2021.