



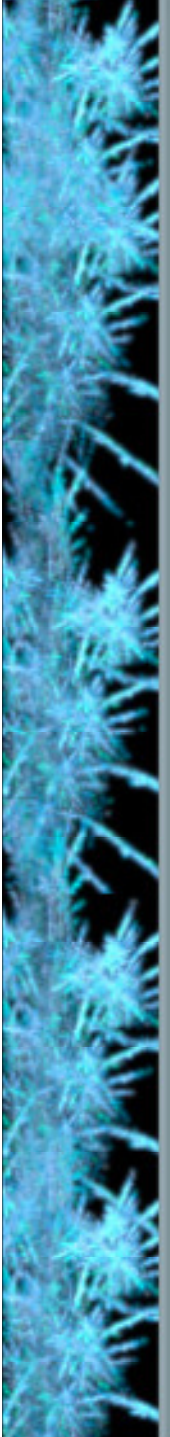
# **Protecting the Integrity of Policy- Relevant Science**

**A classroom lecture prepared by  
the Union of Concerned  
Scientists (UCS)**

# Federal Science – Compromised by Politics



*“Don’t think of it as fudging the facts. Think of it as Science Fiction.”*



# **Federal Science – Compromised by Politics**

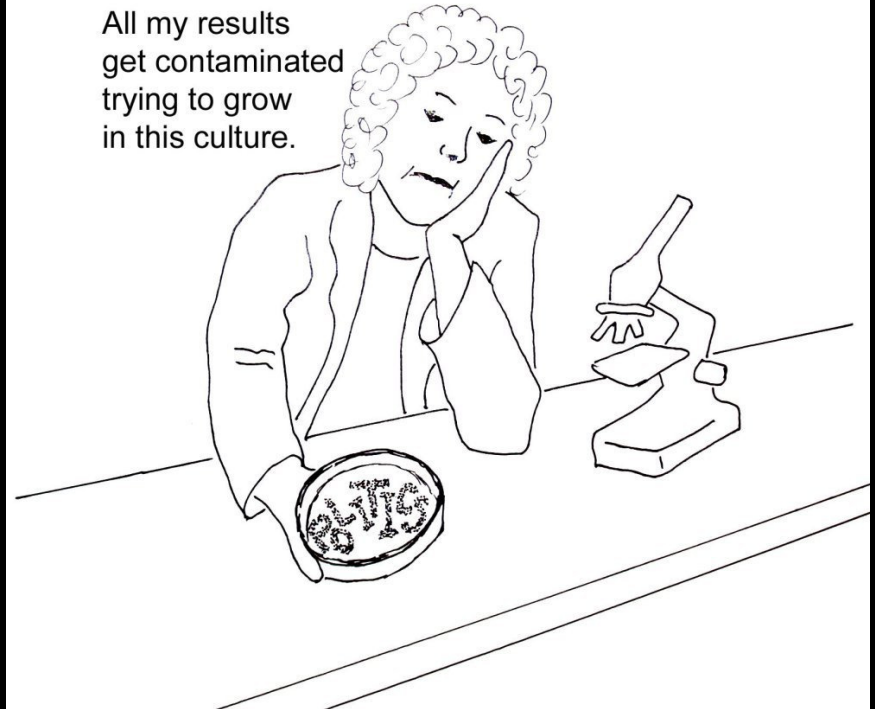
**As a result of political interference in science:**

- Americans take unsafe drugs, and tens of thousands have died from them.**
- Products sold to children are contaminated with toxins.**
- Environmental problems like global warming do not have effective policy solutions.**
- Critically endangered species are denied protections.**
- Communities and environments are polluted with dangerous chemicals.**

# Federal Science – Compromised by Politics

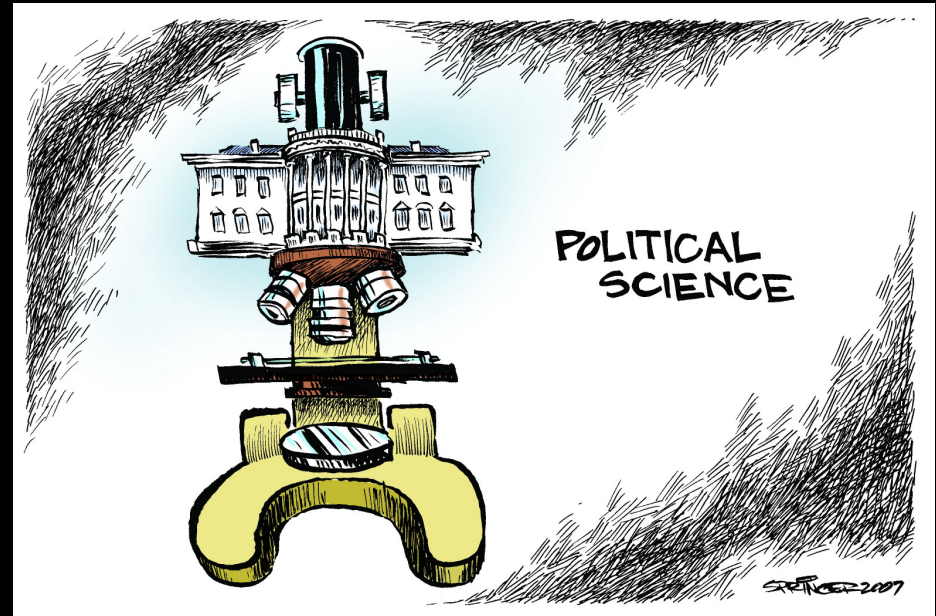
Over 15,000 U. S. scientists have joined the Union of Concerned Scientists to call for reforms that would restore scientific integrity to federal policy-making.

All my results  
get contaminated  
trying to grow  
in this culture.



# The Boundary of Science and Policy

- When policy making distorts science, we risk:
  - Human health
  - Global security
  - Environmental sustainability
- Good science is a necessary component of good policy





# **Outline: Protecting the Integrity of Policy-Relevant Science**

- **Defining Political Interference**
- **Integrity in the Scientific Process**
- **Methods of Political Interference: Direct and Indirect**
- **Consequences of Political Interference**
- **Solutions and Reforms**

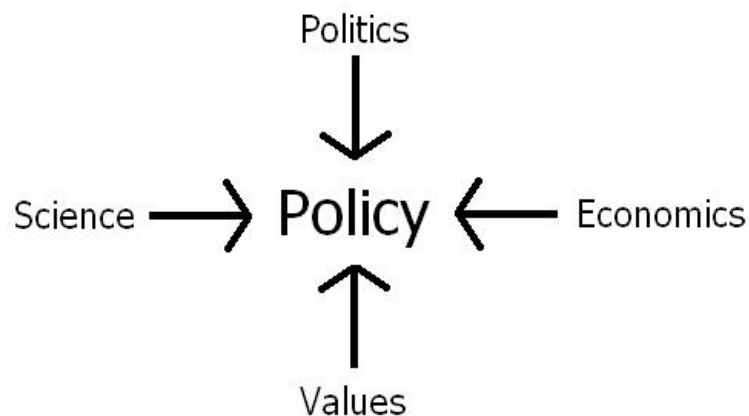
# Political Interference

Attempts to inappropriately undermine, alter, or otherwise interfere with the scientific process or scientific conclusions for political or ideological reasons



# Science in the Policy Arena

- Science is an increasingly important factor in decisions the government makes about health, security, and sustainability
- Science is only one aspect of the policy process, but it must remain an independent one



- Manipulation or suppression of science *before* it enters the public policy arena is not politics as usual and is not OK



# The Scientific Process: How do we know what “good science” is?

- Scientists follow logical paths that refine our knowledge
- All scientific ideas are subject to challenge and modification—results must be repeatable
- Over time, science is self-correcting—an open debate of theories weeds out weak ideas until a strong consensus is reached



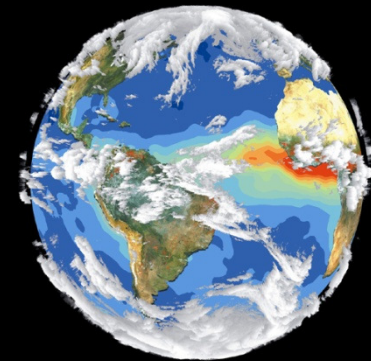
# The Scientific Process

- **Scientific consensus means an idea has withstood rigorous testing and is our best understanding of the subject being studied**
- **Some uncertainty will always remain; science strives to minimize that uncertainty to reasonable levels**
- **Scientists police the quality of research through peer review—research that does not use quality data and methods is not published**



# Policy-Relevant Science Should:

- Be question-driven
  - Serves the public interest
- Be independent
  - Unconstrained by conflicts of interest
  - Objective and unbiased
- Reach evidence-driven conclusions
- Be Open and transparent
  - All data analyses and results are publicly available
- Have results can be reviewed, reproduced, and verified as free of bias, fraud, and falsification



# Politicization of Science

Widespread and pervasive political interference occurs through both direct and indirect means

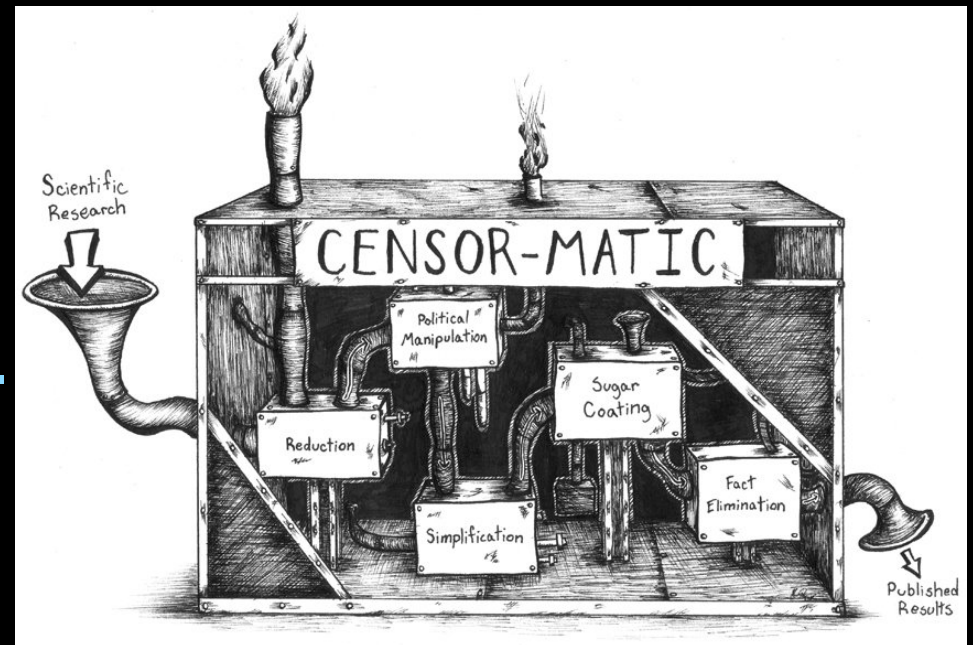


"You are completely free to carry out whatever research you want, so long as you come to these conclusions."

# Direct Politicization of Science

Most direct politicization of science falls into three categories:

- Censorship and suppression of federal science
- Dissemination of inaccurate science-based information
- Manipulation and distortion of scientific advice



# Censorship and Suppression

- **Clear Skies Initiative**  
The Environmental Protection Agency (EPA) withheld an analysis that showed a Senate plan would be more effective at reducing pollution at about the same cost as the White House's Clear Skies Initiative



# Censorship and Suppression

- Antidepressants and children
  - An FDA official barred a top agency expert from testifying about his research on suicide risks
  - He was told to delete information being submitted to Congress and to conceal those deletions



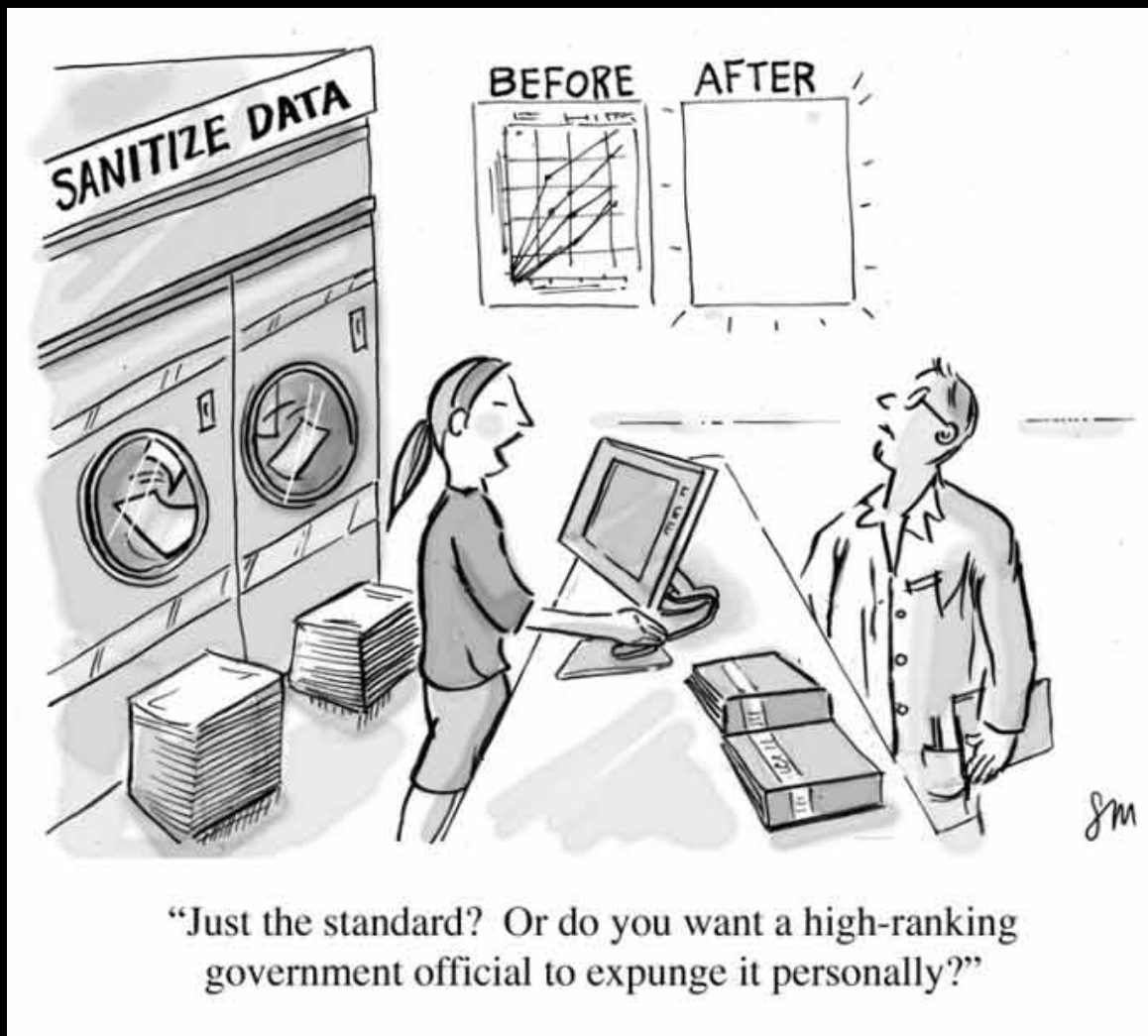
# Censorship and Suppression

- **Vioxx**
  - A Food and Drug Administration (FDA) official attempted to suppress studies that showed the pain medication Vioxx increased heart attack risk
  - Dr. David Graham, who conducted the studies, said agency officials subjected him to “veiled threats” and suggested “watering down” the report





# Censorship and Suppression



# False or Inaccurate Science

- **Breast cancer and abortion**
  - False information suggesting a link between abortion and breast cancer was placed on a Centers for Disease Control and Prevention (CDC) website
- **Lead content in vinyl lunch boxes**
  - The U.S. Consumer Product Safety Commission (CPSC) assured parents that children's vinyl lunch boxes were safe even though its own testing revealed high levels of exposure to lead
  - The CPSC then changed its testing procedures to manufacture data that would fall within current lead exposure limits



# Distortion of Scientific Advice

Scientific advisory panels, which review the scientific basis for federal regulations, have been manipulated by:

- Selecting members with questionable qualifications or conflicts of interest
- Misrepresenting the panel's scientific advice
- Dismissing the panel entirely



# Distortion of Scientific Advice

- **Florida panther**
  - The U.S. Fish and Wildlife Service (FWS) used faulty data to limit the protection of Florida panther habitat
  - After blowing the whistle, FWS biologist Andrew Eller was fired
  - Eller was reinstated after the government admitted its errors



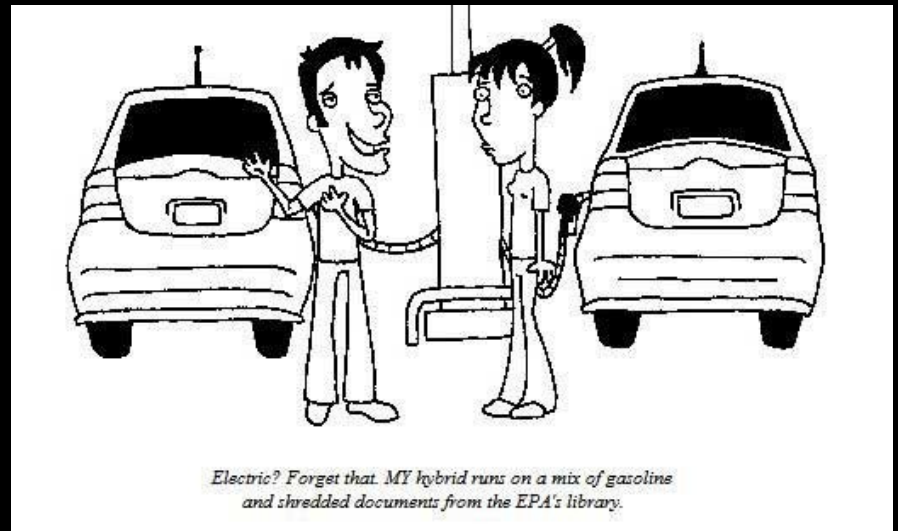


# Indirect Politicization of Science

- Besides the more obvious attacks on scientific integrity such as censorship and editing, subtle encroachments include limiting access to information, reducing transparency, and sidelining science from the decision-making process
- Examples:
  - The EPA plans to scale back reporting requirements for industries producing and releasing toxins, reducing the public's right to know about toxins released in local communities

# Indirect Politicization of Science

- Examples continued:
  - The EPA has closed many scientific libraries, cutting off scientists and citizens from unique documents
  - The FWS only allows biological science that would refute a petition to list an endangered species in the decision-making process

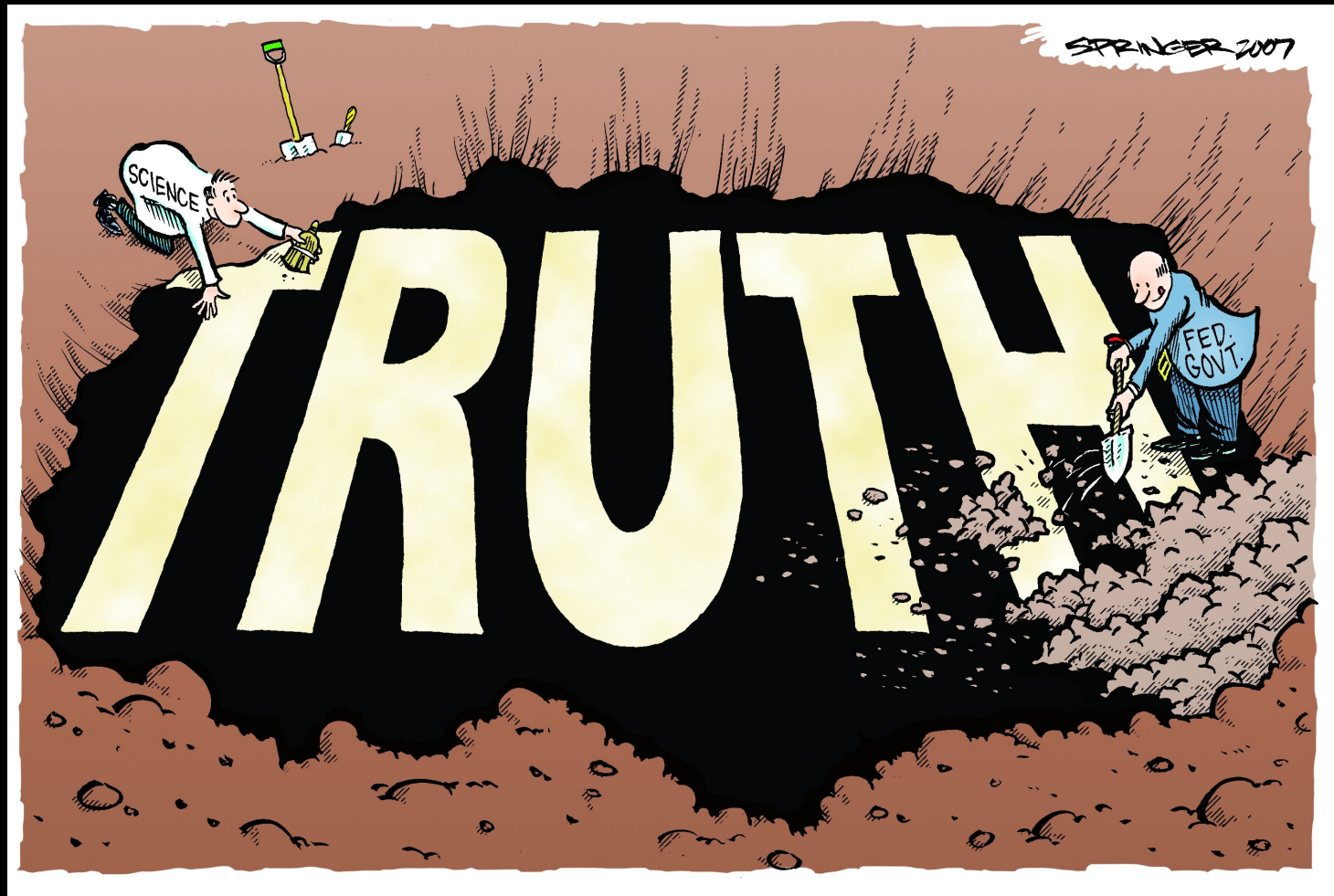




# **Sidelining Science: Regulatory Policy**

- **Executive Order 13422 centralizes regulatory processes under the White House by:**
  - **Placing political appointees at the head of all regulatory work at each agency, giving them first right of refusal for new regulations (even before the scientific research begins)**
  - **Insisting agencies justify new regulations as a “market failure” instead of citing the consequences the regulation is meant to avoid (for example, regulating a toxin after it has caused damage rather than before it comes into contact with sensitive populations)**

# Politicization of Science

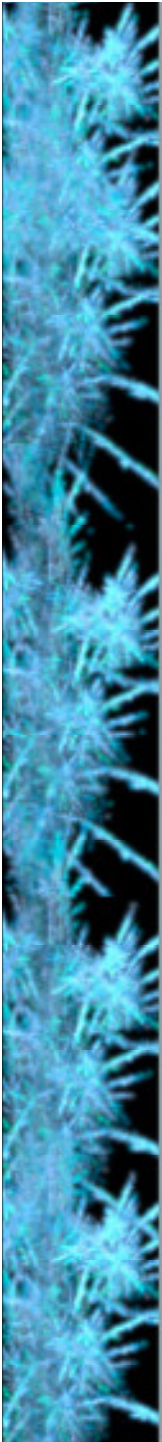






# Broad Scope

- **Politicization of science has been reported in 22 federal agencies**
- **Of more than 1,800 federal scientists across nine agencies who responded to surveys from the Union of Concerned Scientists (UCS), 699 (39%) reported that they fear retaliation for openly expressing concerns about their agency's mission-driven work—this number should be zero**



# Broad Scope: Scientist Surveys

- UCS has conducted numerous surveys of federal scientists to gauge the levels and consequences of political interference. Of the respondents:

FDA	FWS	NOAA Fisheries
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18%	20%	24%
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... were asked to inappropriately exclude or alter scientific information in documents for non-scientific reasons

61%	70%	58%
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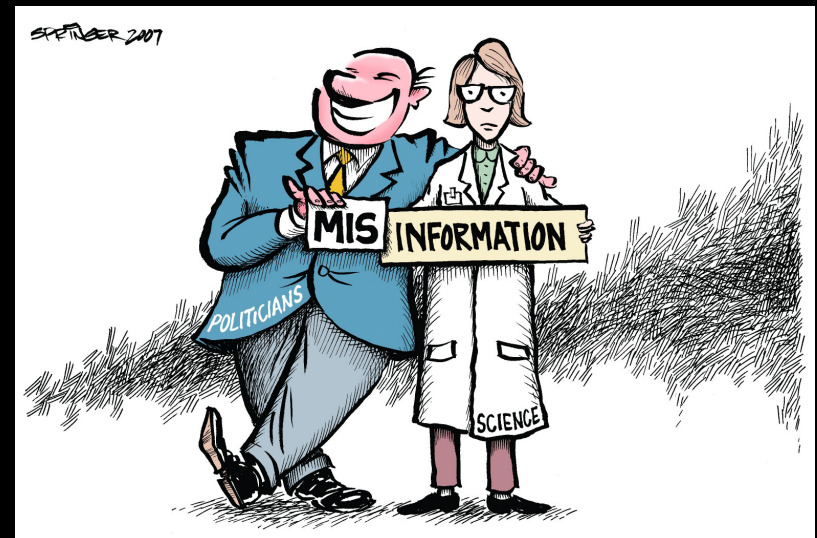
... knew of cases where political appointees had inappropriately injected themselves into decisions or actions

60%	56%	53%
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... knew of cases where commercial interests had inappropriately induced or attempted to induce the reversal, withdrawal, or modification of agency determinations and actions

# Political Interference has Broad Consequences

- Institutionalization of the abuse of science
- Centralization of policy making
- Increased power of political appointees
- “Cultural” acceptance of interference
- Growing public scientific illiteracy and loss of faith in scientists



# Specific Consequences: Interference in Climate Research

- There exists, and has existed since the 1990s, an overwhelming consensus among scientists that the planet is warming, and that humans' heat-trapping emissions are the primary cause of this change
- In the United States, political interference in climate change science has contributed to the appearance of ongoing debate about the causes





# Consequences: Climate Research

- **This interference includes:**
  - **Editing scientific reports to change their meaning**
  - **Deleting references to global warming**
  - **Muzzling scientists by screening media requests and redirecting interview requests to scientists with “policy-favorable” opinions**
  - **Editing press releases to downplay global warming**
  - **Cutting funding for satellite monitoring systems used in climate research**

# Consequences: Climate Research

- As a result:
  - The public is widely misinformed about the existence of scientific consensus
  - We fail to protect future generations and our planet from the consequences of global warming
  - Policy makers cannot make fully informed decisions
  - Federal agencies are unable to fulfill their scientific missions



# Consequences of Political Interference

- **Endangered Species**
  - **Interference:** Widespread suppression, manipulation, and editing of scientific research on numerous endangered species
  - **Consequence:** Critical habitat is not protected and many endangered species face increased risk of extinction

ENDANGERED  
SPECIES



BALD EAGLE



BLUE BUTTERFLY



DESERT TORTOISE



INDEPENDENT SCIENTIST



# Consequences of Political Interference

- **Drug Safety**
  - **Interference:** The FDA suppressed studies showing that medications such as Vioxx and antidepressants potentially increase the risk of various life-threatening conditions
  - **Consequence:** Those using the medications were exposed to these risks without their knowledge, resulting in serious side effects such as heart attack and death (for example, 55,000 premature deaths estimated for Vioxx)





# Consequences of Political Interference

- **FEMA Emergency Housing**
  - Despite warnings, FEMA delayed testing the federally-provided travel trailers of Hurricane Katrina evacuees for formaldehyde, a hazardous chemical
  - Over 100,000 households lived in toxic housing before public and Congressional pressure forced them to test the trailers
  - After 2 years of stalling, testing revealed formaldehyde levels in excess of 4 to 40 times acceptable levels.

# Solutions and Reforms

- The government should develop policies that will ensure:
  - Openness
  - Transparency
  - Accountability
  - Prevention





# Solutions and Reforms

- **Ensure the independence of scientific advisory committees by enforcing disclosure of conflicts of interest, maintaining a balance of viewpoints, and forbidding the questioning of nominees about political affiliations and views**
- **Reform the media policies of federal agencies to protect scientists from interference by political appointees, guarantee scientists' right to express personal views, and give scientists the right of last review on publications**



# Solutions and Reforms

- **Whistleblower protections should be strengthened**
  - Whistleblowers are employees that report misconduct such as fraud, safety violations, and corruption
  - Whistleblower protections would shelter these citizens from repercussions such as harassment, suspension, or termination
- **Agencies should explicitly inform and train scientists about their personal rights (in respect to publication, communication, and protection)**

# Solutions and Reforms

- Congress should ensure the quality of federal science by:
  - Increasing oversight of federal science agencies through hearings and investigations
  - Restoring the Office of Technology Assessment (OTA), which produced independent scientific analyses for Congress before it was abolished in 1995



# Solutions and Reforms

- **The president should strengthen the scientific advice provided to the executive branch**
  - **The Director of the White House Office of Science and Technology Policy (OSTP) should be restored to the level of assistant to the president**
  - **The staff at OSTP should be expanded to increase access to independent scientific advice**





# Solutions and Reforms

- **Action you can take at the grassroots level:**
  - **Join or support an organization advancing the cause of scientific integrity**
  - **Engage your friends, relatives, teachers, etc. in a dialogue about the politicization of science**
  - **Urge your elected officials to support scientific integrity legislation and initiatives**
  - **Hold an event, invite a speaker, or host a roundtable with a scientific integrity theme**