

## Do You Trust Scientists About the Environment?

### News Media Sources and Politics Affect New Hampshire Resident Views

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New Hampshire residents highly value their state's natural environment and the ecosystem services it provides. In a 2013 Granite State Poll, 98 percent of respondents said that clean water is very important to their own quality of life.<sup>1</sup> Scenic values of forest and farmlands (66 percent) and outdoor recreation such as hunting, hiking, or swimming (63 percent) were not far behind. People also rated New Hampshire's forests very important to their quality of life, both for economic reasons (63 percent) and for carbon storage to reduce global warming (61 percent). But these highly valued ecosystem services—clean water, healthy forests, wildlife, scenic landscapes, and shorelines—face challenges posed by human activities.

Some challenges are obvious, such as paving open lands or building high-voltage transmission lines across the landscape, which lead to the degradation of scenery and loss of wildlife. Other environmental challenges are not so visible to the naked eye. For example, nitrogen pollution from nonpoint sources, such as runoff and sewage, affects fish and plant life in lakes and the Great Bay.<sup>2</sup> A decades-long trend toward warmer winters has expanded the range of insects harmful to trees, animals, and people.<sup>3</sup> Although such environmental changes may be difficult to see, they are evident in scientific data.

Americans historically have placed a high level of trust in the information provided by scientists. Although surveys suggest that public trust in science has declined somewhat during the past two decades, this trust remains strong compared with other institutions such as political leadership or news media. National surveys show the decline occurring mainly among people who describe themselves as political conservatives. Among those who see themselves as moderate or liberal, trust in scientific information has been more stable.<sup>4</sup>

#### KEY FINDINGS

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Almost two-thirds of New Hampshire residents surveyed in late January–early February 2014 say that they trust scientists to provide accurate information about environmental issues. Only 12 percent do not trust scientists to provide this information.



Large majorities within most political groups trust scientists, but only a small minority of tea party Republicans trust them.

53%

Wide disparities occur along party lines regarding many questions about science. The 53 percentage point gap between Democrats and Republicans on climate change is one of the largest for any issue.

37%

Trust in scientists shows a somewhat narrower Democrat-Republican gap (37 percent), which is larger than disparities for historically divisive social issues such as abortion or the death penalty.

NHPR

People who often listen to New Hampshire Public Radio are more likely to trust scientists and respond differently from other New Hampshire residents on science-related questions.



People who often watch local television news or read newspapers, on the other hand, respond differently only on gun- or crime-related questions.

To find out where New Hampshire residents stand regarding science and environmental issues, the Survey Center at the University of New Hampshire asked the following question on the Granite State Poll in late January–early February 2014:

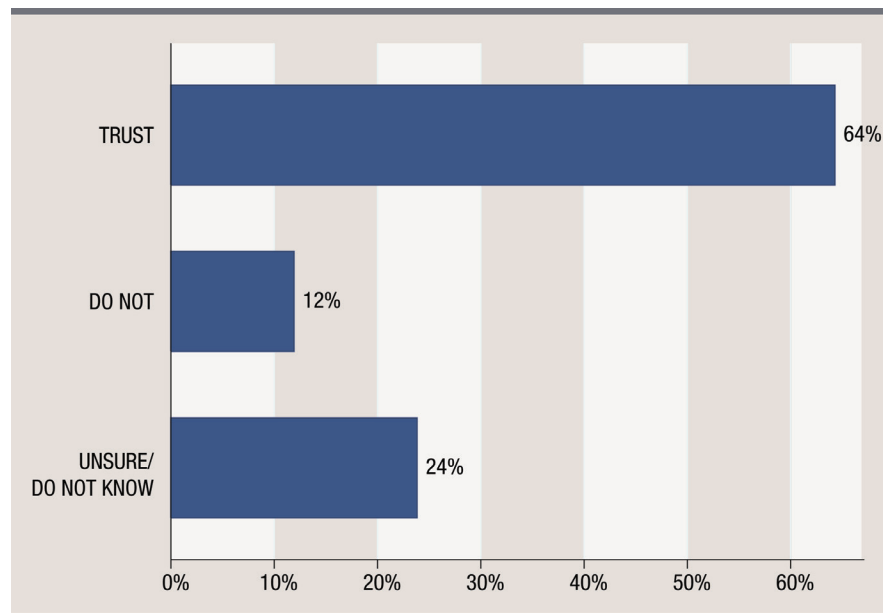
*Would you say that you trust, don't trust, or are unsure about scientists as a source of information about environmental issues?*

Figure 1 shows response percentages based on telephone interviews with 568 randomly selected New Hampshire residents.<sup>5</sup> From a scientist's point of view, the results might be encouraging: 64 percent say they trust scientists for information about environmental issues, whereas only 12 percent say they do not. The percentage of New Hampshire residents who trust scientists is significantly higher than the nationwide percentage found on a fifty-state survey in 2011 (64 percent in New Hampshire versus 54 percent in the United States).<sup>6</sup> It seems that New Hampshire residents hold science in relatively high regard.

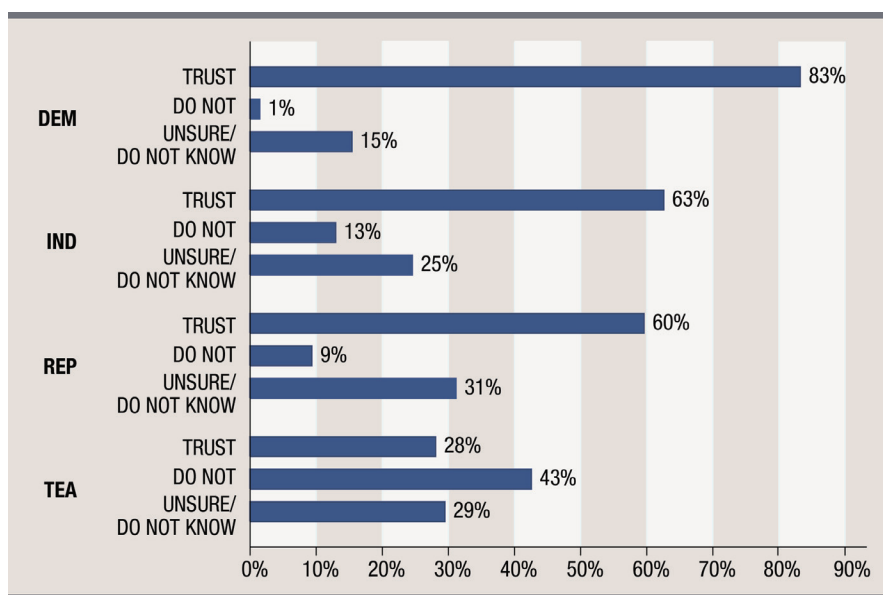
Other surveys have studied political divisions in public views of science.<sup>7</sup> Similar divisions exist in New Hampshire as well. As a refinement of the usual Democrat/Independent/Republican poll groupings, and to reflect current politics, we tested whether Republicans who say they support the tea party movement (tea party Republicans) might comprise a distinctive fourth “party.” A four-party breakdown of responses is graphed in Figure 2.

Figure 2 shows that strong majorities in most groups trust scientists for environmental information: 83 percent of Democrats, 63 percent of Independents,

**FIGURE 1: DO YOU TRUST SCIENTISTS AS A SOURCE OF INFORMATION ABOUT ENVIRONMENTAL ISSUES?**



**FIGURE 2: DO YOU TRUST SCIENTISTS AS A SOURCE OF INFORMATION ABOUT ENVIRONMENTAL ISSUES? RESPONSES ARE BROKEN DOWN BY POLITICAL PARTY IDENTIFICATION, WITH REPUBLICANS SUBDIVIDED INTO THOSE WHO DO OR DO NOT SUPPORT THE TEA PARTY MOVEMENT.**



and 60 percent of non-tea party Republicans. This picture shifts drastically with the fourth political group, however. Among tea party Republicans, only 28 percent trust scientists. The proportion saying they do not trust scientists jumps from 9 percent among other Republicans to 43 percent among tea party Republicans.

## Other Science and Social Issues

The same Granite State Poll asked other questions about science, politics, and social issues that help to place the science trust results in perspective. Box 1 lists these questions posed in the poll.

Figure 3 on the next page charts responses to four science-related questions. We see that 55 percent of respondents believe that climate change is happening now and is caused primarily by human activity. Thirty-two percent of respondents believe change is happening but is caused primarily by natural forces. Only 8 percent of respondents believe climate change is not happening, and 5 percent say they do not know the answer. These responses are not much different from responses seen in earlier New Hampshire polls which have asked this question over the past four years.<sup>8</sup> A second climate-related question asks whether people think that future Arctic warming will affect the weather where they live; the question does not specify human or natural causes. Sixty percent think Arctic warming will have major effects. A detailed analysis of earlier polls found that people are most likely to believe Arctic warming will have major effects on their weather

### Box 1: Nine Questions About Science and Other Issues

1. Would you say that you trust, don't trust, or are unsure about scientists as a source of information about environmental issues?
2. Which of the following three statements do you personally believe?
  - Climate change is happening now, caused mainly by human activities.
  - Climate change is happening now, but caused mainly by natural forces.
  - Climate change is NOT happening now.
3. If the Arctic region becomes warmer in the future, do you think that will have no effect, minor effects, or major effects on the weather where you live?
4. Which of the following two statements comes closer to your personal beliefs:
  - Human beings evolved from earlier forms of life, in a process that took millions of years, or
  - God created human beings pretty much in their present form within the past 10,000 years or so.
5. How familiar would you say you are with Genetically Modified Organisms, also known as GMOs? Are you very familiar, somewhat familiar, not very familiar, or not at all familiar?
 

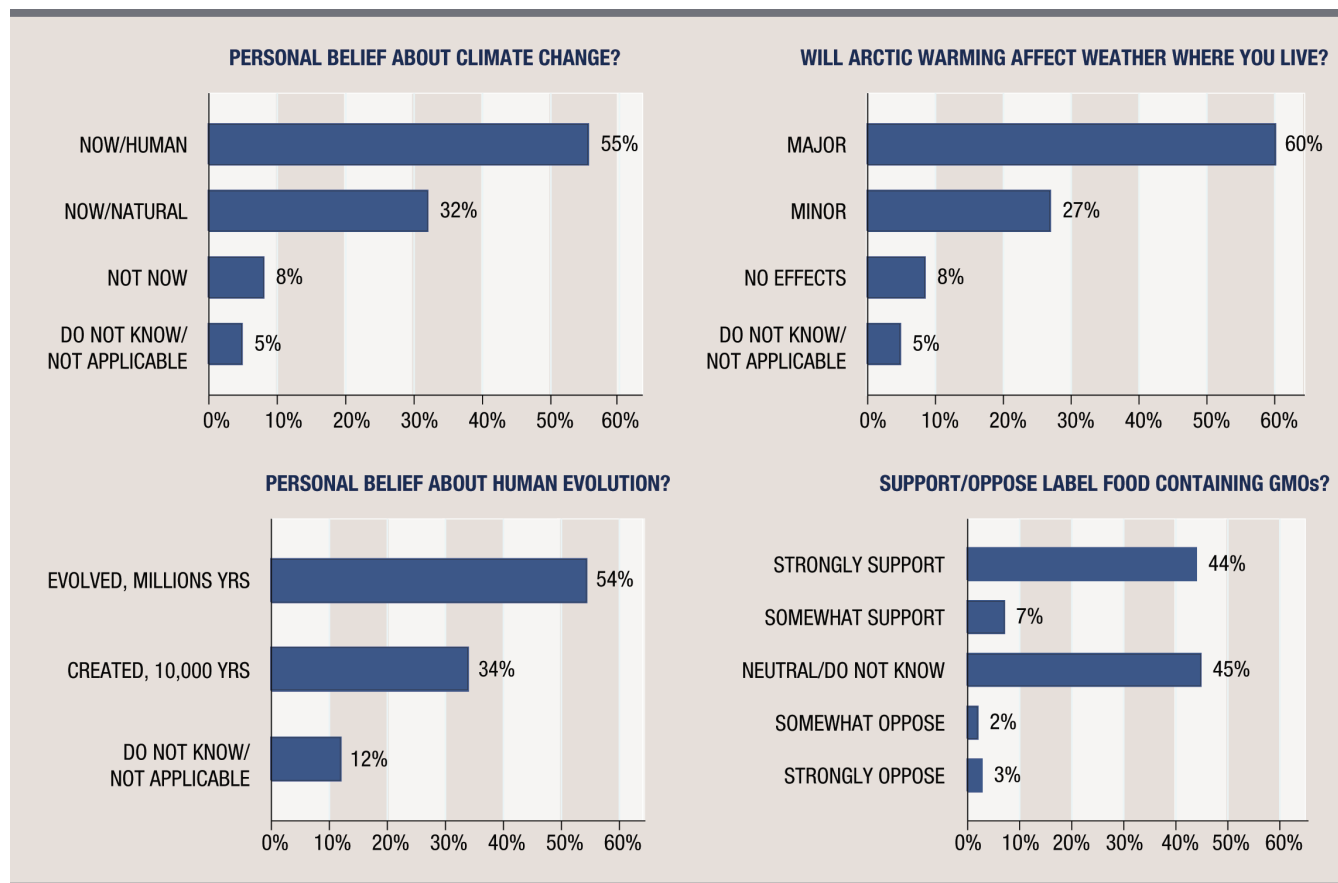
If respondents expressed at least some familiarity, they were asked a follow-up question:

Would you support or oppose a law that clearly labels food that contains GMOs or don't you know enough about this to say?
6. Generally speaking, do you approve or disapprove of the way Barack Obama is handling his job as president?
7. In general, do you think gun control laws should be made more strict, less strict, or kept as they are now?
8. Which of the following statements best represents your position on abortion:
  - Abortion should be legal in ALL circumstances
  - Abortion should be legal in limited circumstances, such as in cases of rape or incest or when the mother's life is in danger, or
  - Abortion should not be legal in ANY circumstance?
9. Are you in favor of the death penalty for a person convicted of murder?

when they are interviewed on unseasonably warm or cool days.<sup>9</sup>

Questions are often asked on surveys to assess public acceptance of a basic tenet of biological science, evolution. Fifty-four percent of our New Hampshire respondents

believe that humans evolved from earlier forms of life in the course of millions of years. About one-third of respondents, however, believe that God created humans pretty much in their present form within the last 10,000 years.

**FIGURE 3: RESPONSE TO FOUR SCIENCE-RELATED QUESTIONS**

The fourth science question in Figure 3 is a new experiment asking whether labels should be required for food containing genetically modified organisms (GMOs). Forty-five percent of respondents indicate that they do not know enough about GMOs to give an opinion. Forty-four percent, however, strongly support required labels for GMO food.

Figure 4 charts responses to four questions asked in the same poll. Thirty-nine percent of the respondents approve or lean toward approving the way President Obama is handling his job. Forty-four percent believe that gun control laws should be made stricter, 40 percent favor

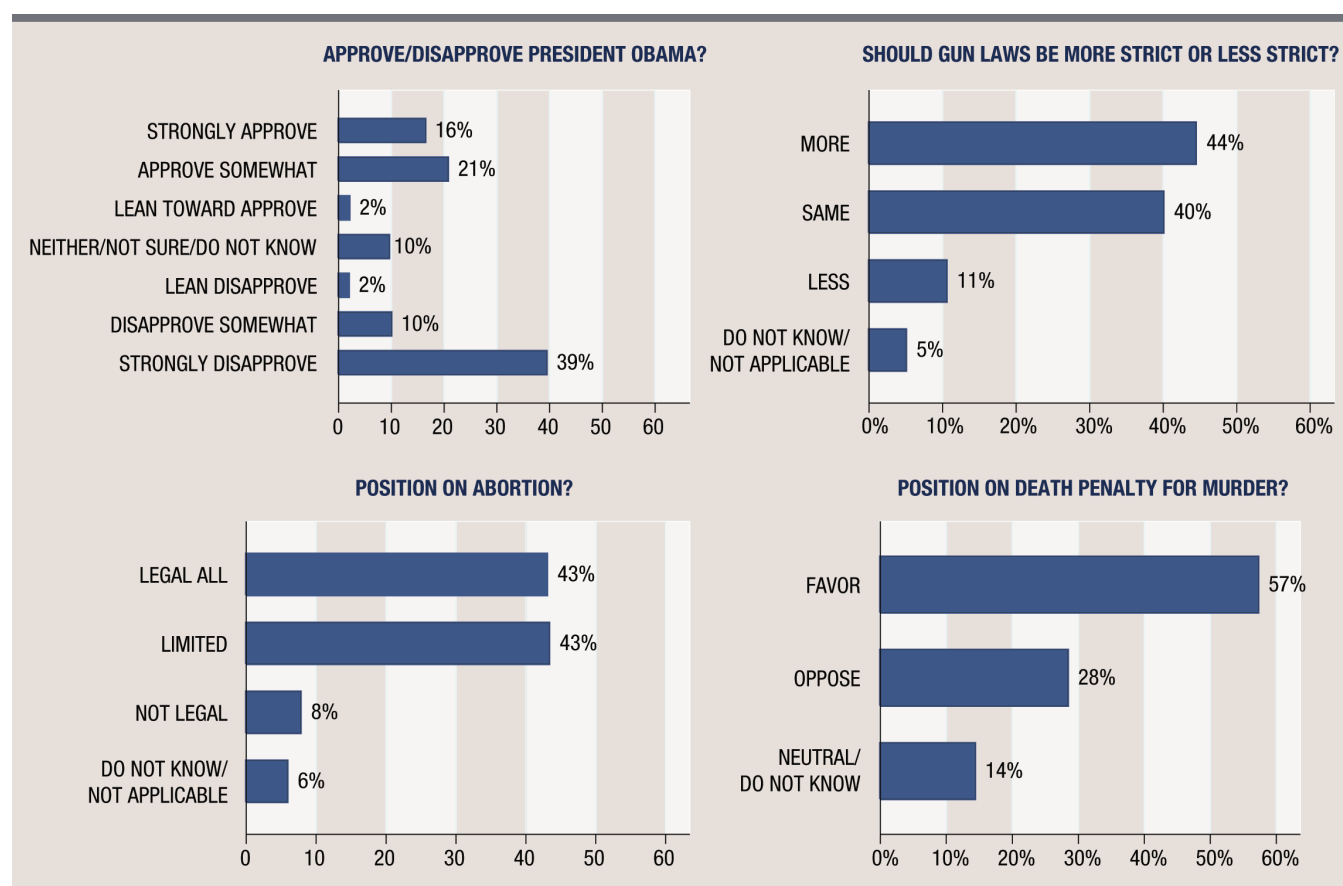
maintaining current gun laws, and only 11 percent think current gun laws should be relaxed. Equal proportions believe that abortion should be legal in all circumstances (43 percent) or legal in limited circumstances (43 percent), whereas 8 percent believe abortion should be illegal in all circumstances. Finally, a majority (57 percent) of respondents favor the death penalty for a person convicted of murder.

### Views Along Party Lines

We have seen that trusting scientists for information on environmental issues follows a partisan pattern. This trust is particularly

low among tea party Republicans (Figure 2). The questions in Figures 3 and 4 elicit partisan responses as well. Figure 5 breaks down key response percentages on all nine science or social issue questions, according to our four-party political indicator. For example, the upper left chart shows the percentage of respondents who approve of President Obama among Democrats (80 percent), Independents (25 percent), non-tea party Republicans (13 percent), and tea party Republicans (0 percent).

A partisan gradient, from Democrats to tea party Republicans, appears in eight of the nine charts. Beliefs about the physical reality of

**FIGURE 4: RESPONSE TO QUESTIONS ABOUT POLITICS AND SOCIAL ISSUES**

climate change follow party lines much like those for approval of President Obama. Eighty-three percent of Democrats, but only 23 percent of tea party Republicans, agree with the consensus among scientists that Earth's climate is changing now, caused primarily by human activities.<sup>10</sup> Overall, we see that tea party Republicans are far less likely than other groups to approve of President Obama, to believe in human-caused climate change, to think gun control laws should be made more strict, to trust scientists for information about environmental issues, to think that future Arctic warming will have major effects on the weather, to believe that abortion

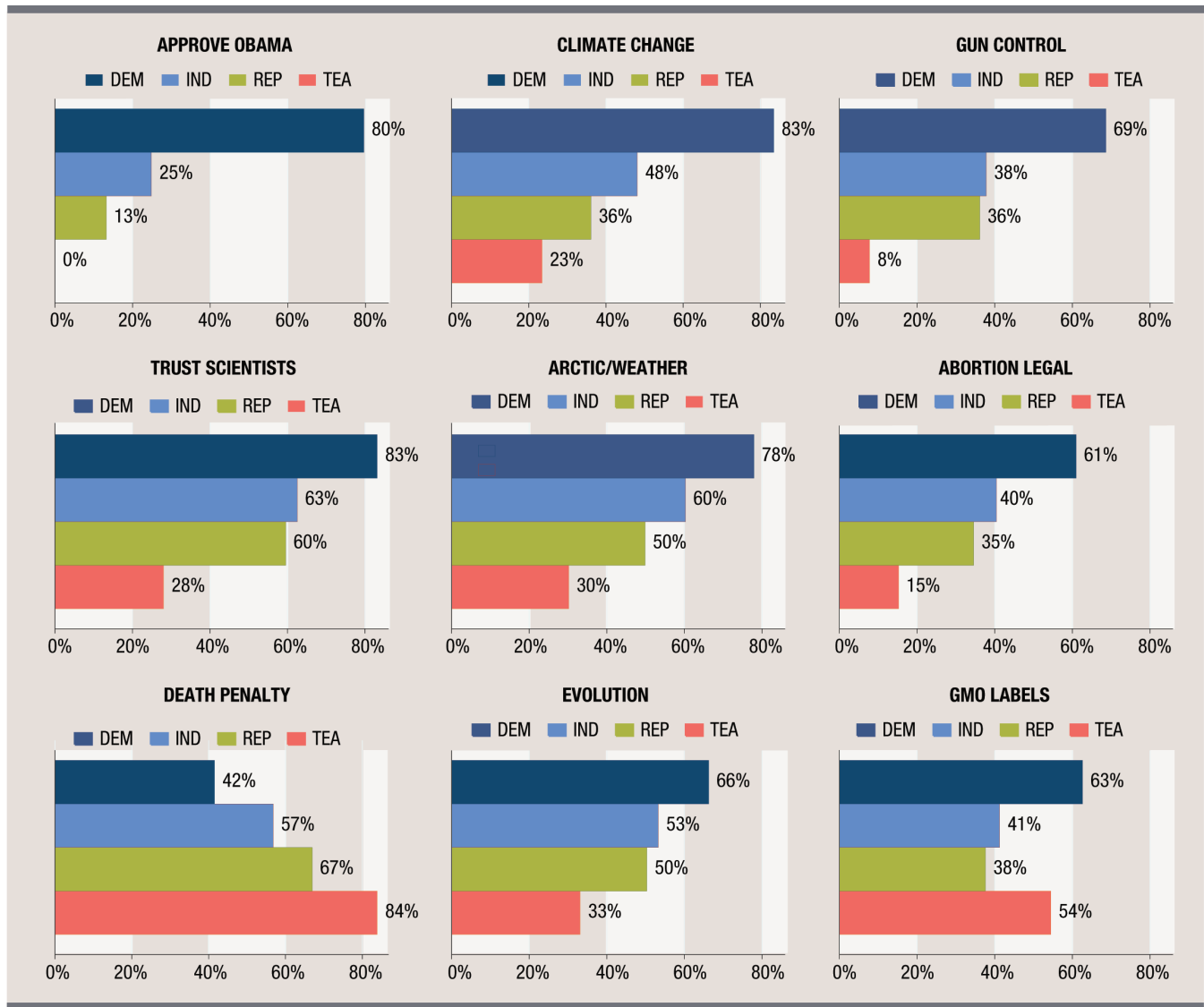
should be legal in all circumstances, or to believe that humans evolved from earlier life forms over millions of years. Tea party Republicans are much more likely, however, to favor the death penalty for a person convicted of murder.

One question in Figure 5 does not fit this partisan gradient: support for requiring labels on food containing GMOs. A majority of Democrats (63 percent) support GMO labeling, but so do a majority of tea party Republicans (54 percent). Among non-tea party Republicans (38 percent) and Independents (41 percent), less than one-half support GMO labeling.

## How Large Are the Party Line Gaps?

Figure 6 orders our nine questions in terms of their party-line gaps: the difference between Democrats and Republicans (combining tea party with non-tea party Republicans in this graph for better comparison with previous surveys). As one might expect, the widest Democrat-Republican gap, 72 points, involves approval of President Obama. The second-largest gap, however, occurs with a question related to science: a 53 point difference between Democrats and Republicans with regard to the scientific consensus that human activities are changing Earth's climate.



**FIGURE 5: RESPONSES TO NINE QUESTIONS, BROKEN DOWN BY POLITICAL PARTY**

Trust in scientists as a source of information is also divided. The 37 point party-line gap on this question—occurring, as we saw earlier, largely from the tea party faction within the Republican Party—exceeds the gap for the divisive social issues of abortion or the death penalty. A similarly large gap (36 points) occurs with regard to questions about the future effects of Arctic warming on New Hampshire weather. Although scientists are

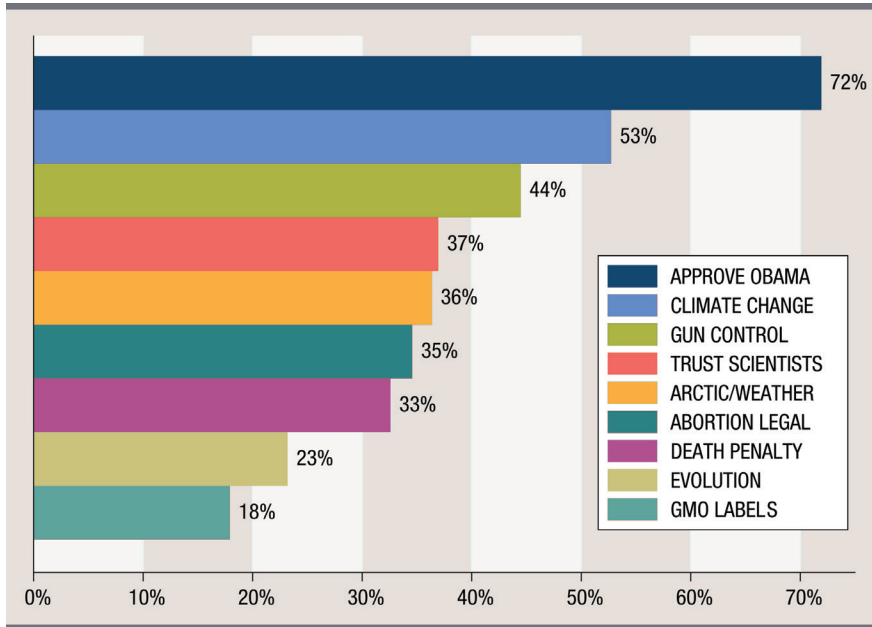
currently researching what effects Arctic warming has had on mid-latitude weather to date,<sup>11</sup> most believe that such warming will have global consequences if it continues.

Figure 6 suggests a changing political landscape in which scientific ideas and information that are accepted by most scientists are, nevertheless, highly controversial among the general public. The science questions thus follow patterns formerly seen in political questions

and “hot button” social issues. Public views of environment-related science, which often reports on the effects of human activities, have become strongly polarized.<sup>12</sup>

## News Media Sources

Previous studies have examined how survey responses to science-related questions vary with background characteristics such as age, gender, or education.<sup>13</sup>

**FIGURE 6: PERCENTAGE POINT DIFFERENCE BETWEEN DEMOCRAT AND REPUBLICAN RESPONSES****Box 2: Questions About News Media Sources**

1. Do you subscribe to or regularly read:
  - *The Union Leader* or the *New Hampshire Sunday News*?
  - *The Boston Globe*?
2. How often, if ever, do you watch WMUR, Channel 9 News? Would you say every day, several times a week, occasionally, or never?
3. How often, if ever, do you listen to New Hampshire Public Radio? Would you say every day, several times a week, occasionally, or never?

Education often has strong effects, although these education effects may depend on people's political outlook.<sup>14</sup> In this brief, we explore something different: Are responses to our nine questions related to respondents' news media sources? The Granite State Poll asked about four regional news media sources: *The Boston Globe* and the *Manchester Union Leader* newspapers, WMUR TV (based in Manchester), and New Hampshire Public Radio (NHPR) (Box 2).

Table 1 summarizes results from a statistical analysis testing whether beliefs about science and social issues are related to respondents' news media sources. These results have been adjusted for differences in respondent age, gender, education, and political party, so they can be read as if those factors (and use of the other news media sources) are held constant. A plus (+) sign denotes a statistically

**TABLE 1: RESPONSES RELATED TO NEWS MEDIA SOURCES\***

	BOSTON GLOBE	MANCHESTER UNION LEADER	WMUR TV	NH PUBLIC RADIO
APPROVE OBAMA				+
CLIMATE CHANGE				+
GUN CONTROL	+	-		
TRUST SCIENTISTS				+
ARCTIC/WEATHER				
ABORTION LEGAL				
DEATH PENALTY			+	
EVOLUTION				+
GMO LABELS				+

\* Only the statistically significant positive or negative effects are shown (controlling for age, gender, education, and political party).

significant positive effect, and a minus (-) sign denotes a significant negative effect. For example, after adjustments for age, gender, education, party, and other news media, *Boston Globe* readers are significantly more likely (+), and *Manchester Union Leader* readers significantly less likely (-), to say

that gun control laws should be made more strict.<sup>15</sup>

The poll asked only about regional news media sources, so we cannot test the influence of national news media. Reading either of the two newspapers, one editorially liberal (*Boston Globe*) and the other conservative (*Manchester Union*

*Leader*), predicts responses to only one of our nine questions: whether gun control should be made stricter. Frequency of watching the local television news, WMUR TV, also predicts responses to only one question: favoring the death penalty for murder. Frequent NHPR listeners, on the other hand, are neither more nor less likely to favor the death penalty, nor to think gun controls should be stricter. Rather, they differ from other respondents in being more inclined to trust scientists, to accept the scientific consensus on climate change and human evolution, and to favor labeling food that contains GMOs. They also are more likely to approve of how President Obama is handling his job.

Obama approval and other results in Table 1 might seem to be merely an extension of partisan patterns we saw earlier, if people with different political outlooks favor different news media sources. Although self-selection undoubtedly occurs, this analysis suggests something more. Each effect of news media source is calculated with statistical adjustments for the effects of respondent background characteristics and effects of the other three news media sources. The positive or negative signs in Table 1 thus describe the average influence of each news media source if people were relatively similar in other respects.

Local or regional news media sources, and television in particular, often lead with dramatic crime stories.<sup>16</sup> That emphasis appears to be reflected by the results in Table 1. Television news watchers are neither more nor less likely to hold any particular opinion on the science questions, but they

are more likely than other New Hampshire residents to favor capital punishment for people convicted of murder. Newspaper readership does not predict any of the science responses either but does predict how people respond to a gun control question.

NHPR carries local and national content with a broad informative focus, often built around conversations with scientists and other topic experts. The central role of their informative, expert-based programming helps explain the striking pattern shown in Table 1 in which NHPR listeners respond differently than other New Hampshire residents on four of our five science questions—including whether people trust scientists as a source of information about environmental issues.

## Conclusion

Science provides an early warning system for environmental problems, tools for understanding their causes, and tests to evaluate possible solutions. Almost two-thirds of the New Hampshire residents in our poll say that they trust scientists as a source of information about environmental issues. This proportion is somewhat higher in New Hampshire than nationally, and it holds across the state's political groups with one striking exception. While large majorities of Democrats, Independents, and non-tea party Republicans say they trust scientists, only 28 percent of tea party Republicans trust them.

Other science-related questions on the same poll show partisan divisions as well. Tea party Republicans are least likely to

agree with the consensus among scientists that humans are changing the climate, or that humans evolved from earlier life forms in a process that took millions of years. Democrats and tea party Republicans find agreement, however, in their support for labeling of food containing GMOs.

The party-line gaps on some science questions equal or surpass those of historically divisive social issues including gun control and abortion. Personal beliefs about the physical reality of climate change are politically more divided than almost any other question on our surveys. Trust in scientists also proves strongly divided.

Detailed analysis finds that science responses are related to news media sources. After we account for age, gender, education, and political party, differences remain among people who regularly read a newspaper, watch local television, or listen to NHPR. Frequent NHPR listeners differ from other New Hampshire residents in placing a higher trust in scientists, and they more often agree with the scientific consensus on evolution and climate change.

Hearing from scientists directly heightens public awareness of what scientists do, what they know, and particularly how they know it. Other news media sources could potentially do that job as well, but our analysis suggests that NHPR has been most effective. Conversely, if scientists play only a background role in some media, with crime stories prominent in the foreground, their audiences will have less exposure to science perspectives and think more about crime.



## Endnotes

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7. See Guachat, "Politicization of Science in the Public Sphere," and Hamilton, "Do You Believe the Climate is Changing?" Also see A. M. McCright et al., "The Influence of Political Ideology on Trust in Science," *Environmental Research Letters* (2013). doi:10.1088/1748-9326/8/4/044029
8. See Hamilton and Wake, "Granite Staters Weigh in on Renewable Energy Versus Drilling."
9. L. C. Hamilton and M. Lemcke-Stampone, "Arctic Warming and Your Weather: Public Belief in the Connection," *International Journal of Climatology*, vol. 34 (2012): 1723–1728. doi: 10.1002/joc.3796
10. All major U.S. science organizations (representing hundreds of thousands of scientists) with relevant expertise have endorsed this scientific consensus. Broad agreement on the reality of human-caused climate change has also been confirmed by direct surveys of scientists and by studies of published scientific research. A National Aeronautics and Space Administration (NASA) Web page provides links to many of these sources, available at <http://climate.nasa.gov/scientific-consensus>.
11. J. A. Francis and S. J. Vavrus, "Evidence Linking Arctic Amplification to Extreme Weather in Mid-Latitudes," *Geophysical Research Letters*, vol. 39 (2012). doi:10.1029/2012GL051000
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15. Table 1 summarizes results from nine weighted logistic regression analyses. Each analysis or row in the table tests whether a particular response (such as whether one approves of President Obama, whether one believes human activities are changing Earth's climate, and so forth) is statistically related to eight possible predictors: the four news media sources and respondent age, gender, education, and political party affiliation. The plus (+) and minus (–) signs in Table 1 mark relationships that are statistically significant. Similar logistic regression methods are used widely in survey and other research; for an example using other Granite State Poll results, see Hamilton and Lemcke-Stampone, "Arctic Warming and Your Weather."
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