



Missouri School of Journalism

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Science Communication Research Lab

and

Mississippi River Basin Ag & Water Desk

**Public research in the Mississippi River Basin:
Environmental perspective and identity**

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About the Mississippi River Basin Ag & Water Desk

The Mississippi River Basin Ag & Water Desk is a collaborative reporting network based at the MU School of Journalism covering agriculture, water, climate, energy and other environmental issues throughout the river basin.

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Introduction

As climate change and other environmental issues continue to impact the U.S., it is important to understand public attitudes and knowledge. In this report, we focus on those in the areas surrounding the Mississippi River.

This report serves as a baseline for public attitudes within the Mississippi River Basin by focusing on the 10 mainstem states. We offer insights into the demographics, general environmental attitudes, information habits, and behaviors of those living within the Mississippi River Basin. We also address environmental issues specific to this region, including those related to the management of the Mississippi River and the shared responsibility in addressing ongoing environmental issues.

This report is based on a representative survey of around 230 respondents from each of the 10 mainstem states adjacent to the Mississippi River (Arkansas, Illinois, Iowa, Kentucky, Louisiana, Minnesota, Mississippi, Missouri, Tennessee, and Wisconsin) for a total sample of N=2,305. The survey was conducted in August 2022.

Mississippi River Basin residents: Environmental perspective and identity

Meet the Mississippi River Basin residents

- The demographic breakdown of our sample corresponds to U.S. Census data by state. Overall, 50.4% of the respondents identified as female. The racial breakdown was 72.8% white, 15.4% Black, 5.6% Mixed race (i.e., selected more than one race), 3.6% Latino or Hispanic, and 1.7% Asian. The average respondent is 47 years old and lives in a rural area with some college education and reports an annual household income of \$30,000-\$49,999.
 - Respondents have deep roots within their current states and local communities with most having lived there for decades (or over half of their lives) in their state, and even local communities.
- Many respondents expressed interest in environmental topics: 69.3% paid at least some attention to environmental issues and 52.7% said the environment in general was either important or very important to them personally.
 - Yet, respondents were overall less attentive compared to national government and politics (73.8%) and local and state affairs (76.9%).
 - 71.0% of respondents are at least somewhat worried about environmental issues in their region.
- For news about agriculture and the environment, respondents relied on local television (46.1% at least once per week) and traditional national news networks (40.4%).
 - Social media use was split. 38.2% of respondents used social media platforms for this type of news at least once per week, but another third never used social media platforms for this purpose (33.6%).
- Respondents rely on personal networks of friends, family as critical sources of environmental information (82.1% trust at least somewhat), as well as scientists and researchers with both university and industry affiliations and medical professionals.
 - Slightly less trusted are news media organizations. Public confidence appears to vary with the reach of the news network, with local or regional news organizations (71.3% at least somewhat) trusted more than national traditional media organizations (59.9% at least somewhat).

Environmental attitudes and perspectives

- Many respondents feel at least moderately informed about the environment (68.5%), with their level of comfort varying considerably by topic.
 - Respondents feel informed about topic areas they encountered more regularly, such as climate and weather (36.7% informed, very informed; 7.7% not at all informed), compared to those outside daily experiences, such as agriculture and farming (18.9% informed, very informed; 22.0% not at all informed).
- For factual knowledge, on average, respondents identify the right answer to three of six environmental knowledge questions ($M = 2.3$, $SD = 1.4$).
 - Respondents were most comfortable with a question about fuel sources for electricity and least comfortable with the causes of hypoxia, or dead zones.
- 69.2% of respondents believe that climate change is happening, and 53.4% believe that human activities are the primary cause.
 - Equal numbers of respondents aren't sure about climate change happening (15.4%) or do not think climate change is happening (15.4%).
 - 39.2% think climate change is mostly caused by natural changes.
- Respondents' religious views may play an important role in determining their views of the environment and their responsibility for its care.
 - 71.6% of the respondents believe they have a responsibility to take care of the earth as stewards of God and 67.7% believe humans should respect nature because it was created by God.
- Many respondents believe their states (59.6% agree) and local communities (53.1% agree) are being affected by changes in the environment.
 - 51.9% of respondents indicated they personally had noticed that their local environment has changed, and 49.3% had personally experienced adverse effects from the changes.
 - Respondents were particularly concerned about how changes would impact people's health (53.3% concerned).
- Many respondents did not seem to feel a deep personal connection to the Mississippi River or the basin, or to have a high degree of knowledge or awareness.
 - Although 56.0% think it is important or very important that their state is a part of the Mississippi River Basin, 5.0% did not find it important at all and 15.0% never thought about it.
 - All respondents in the sample live in a basin (mainstem) state, but only 54.4% were aware that their state was in the basin, and 37.8% were not sure.
 - Awareness of whether they personally live in the basin was even lower. Few respondents stated they personally live in the basin (14.3%) with most thinking they do not (64.4%). Yet, of the states included in the sample, four (Arkansas, Iowa, Kentucky, Missouri) are located entirely within the basin and large areas of the remaining states are within the basin. Only 21.0% of residents could correctly identify if they personally resided in the basin.
- Respondents see a role for both individual actions and systemic solutions in addressing environmental issues impacting the region.
 - 58.5% of respondents thought that systemic (whole system) solutions would be required to address regional environmental issues, while 52.5% believe in the efficacy of individual actions in mitigating environmental degradation.

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Mississippi River Basin residents

On average, the Mississippi River Basin survey respondents were 47 years old, white, female living in a rural area with some college education and report an annual household income of \$30,000-\$49,999 (Table 1).

In line with the U.S. Census data from the region, respondents ranged in age from 18 to 92, with most respondents falling between 30-65 years old. The sample leaned more female (50.4%) than male (48.5%). The majority of respondents were white (72.8%), followed by Black respondents (15.4%). Mixed race (i.e., selected more than one race; 5.6%), Latino or Hispanic (3.6%), and Asian (1.7%) were the next largest groups represented in the sample.

Respondents were divided among those living in urban, suburban, and rural areas, with an overrepresentation of rural residents within the sample. A slight plurality of respondents self-reported rural residency (38.6%) followed closely by suburban residency (37.4%). Almost a quarter of respondents reported living in urban areas (24.0%).

In terms of socioeconomic status, the sample was slightly below the U.S. average, in keeping with a sample of rural-leaning respondents from the Midwest and South. Over half of respondents had at least some college education (59.2%), with 37.0% holding a two-year, four-year, or graduate or professional degree. About a third (35.1%) of the sample held a high school degree or equivalent with no college education, and only 5.8% had not graduated from high school. A plurality (41.5%) of respondents fell within an approximately middle-income range, with an annual household income of \$50,000-\$150,000. Just under a third of the respondents (30.1%) were in a lower-income range, earning less than \$29,999 annually. A further quarter of the sample (25.6%) with an annual income of \$30,000-\$49,999 fell somewhere between.

Most respondents reported having lived for decades in their respective states (M = 35.2 years, SD = 20.5) and local communities (M = 23.3 years, SD = 18.8) (Figure 1). Further, comparing the number of years living in their state to each respondent's age revealed that the vast majority

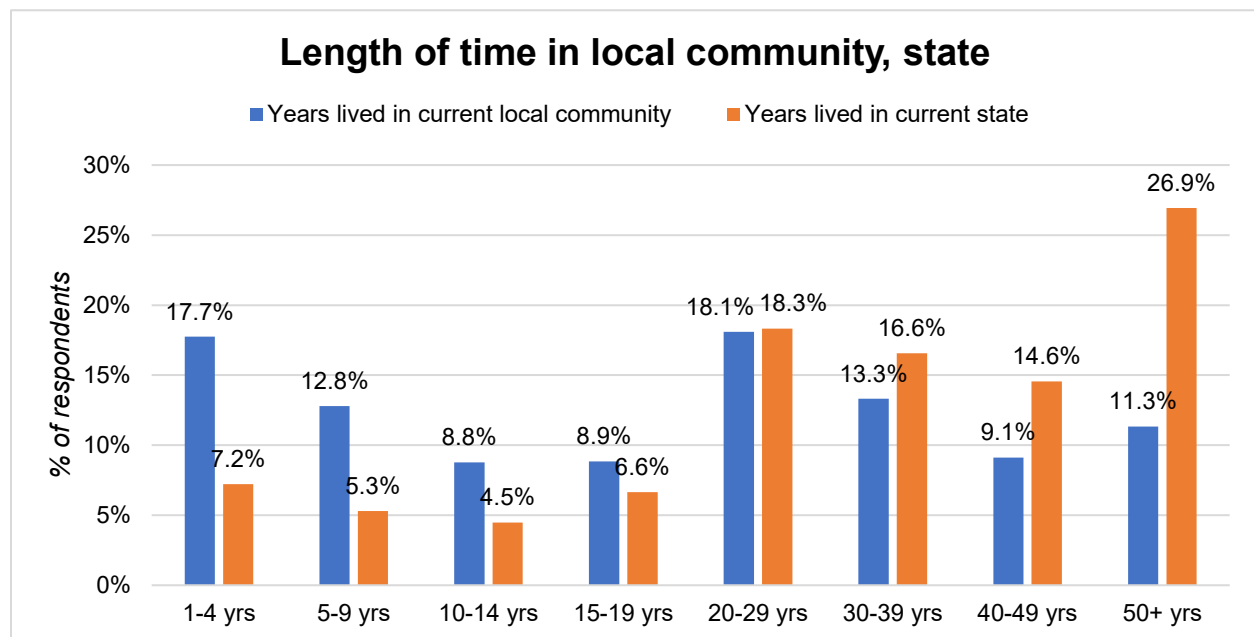


Figure 1. Number of years respondents have lived in their current local community and state.

Table 1. Mississippi River Basin sample demographics.

Demographic	Frequency		Average
Age	18-24 years old	12.8%	M=47.3, SD=17.3 Median=47.0
	25-34 years old	15.7%	
	35-44 years old	17.5%	
	45-54 years old	16.8%	
	55-64 years old	16.0%	
	65 and older	21.3%	
Gender	Female	50.4%	
	Male	48.5%	
	Other/self-describe	1.1%	
Race	White	72.8%	
	Black	15.4%	
	Latino or Hispanic	3.6%	
	Asian	1.7%	
	Native American, indigenous	0.7%	
	Other	0.1%	
	Mixed race	5.6%	
Education	Some high school	5.8%	M=3.3, SD=1.5 Median=3.0 (scale 1-6)
	High school or GED	35.1%	
	Some college	22.2%	
	Two-year college, associate	10.9%	
	Four-year college, bachelor's	17.4%	
	Graduate, professional	8.7%	
Income	Less than \$29,999	30.1%	M=2.5, SD=1.4 Median=2.0 (scale 1-6)
	\$30,000 to \$49,999	25.6%	
	\$50,000 to \$74,999	19.2%	
	\$75,000 to \$99,999	12.9%	
	\$100,000 to \$150,000	9.4%	
	More than \$150,000	2.9%	
Residence	Urban	24.0%	
	Suburban	37.4%	
	Rural	38.6%	

of respondents had spent most of their lives in their current states. Three-quarters of the sample (75.7%) reported living in their current state for over half of their lives with 57.0% having lived in the state almost all of their lives (>90%). When narrowing in to focus on time spent living in their current local communities (city, county), residents were more mobile. Almost half of residents (45.9%) had spent more than half of their lives in their current local community, with only a quarter (25.9%) having been there most of their lives (>90%). In all, many respondents appear to have deep roots within their current states and, to a lesser extent, their local communities.

To learn what professions the respondents had personal connections to, and by extension may have access to more information about, we asked whether they personally knew any (or were themselves) farmers and scientists. About half of the respondents (55.6%) indicated they personally knew a farmer: 5.6% were themselves farmers and 27.4% had a farmer in their immediate or extended family. In contrast, under a quarter of respondents personally knew a scientist (18.0%). While we did not ask respondents to specify their scientist connection, 13.1% held a science or science-related college degree.

Finally, looking that the basic values that may influence how respondents see the world, almost half of respondents reported a high level of religious guidance in their lives (47.9%), with slight differences appearing across urban, suburban, and rural residency (Figure 2). Politically, the sample leaned conservative with 38.7% of respondents identifying as conservative or conservative-leaning compared to 29.4% identifying as liberal or liberal-leaning (Figure 3). The remaining almost third of the sample identified as moderates (31.8%). Looking across residency, urban respondents leaned more liberal and moderate compared to the rural residents. Suburban residences fell somewhere between urban and rural respondents.

See Appendices for the basic demographic make-up of the respondents by state.

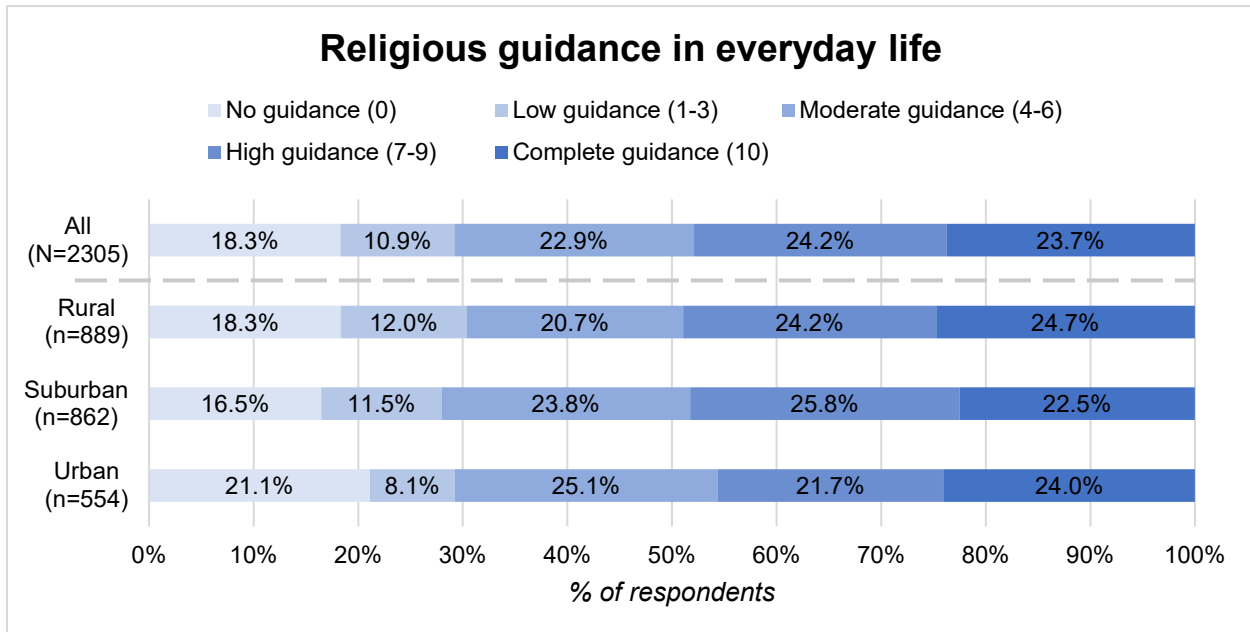


Figure 2. Religious guidance of respondents by residency.

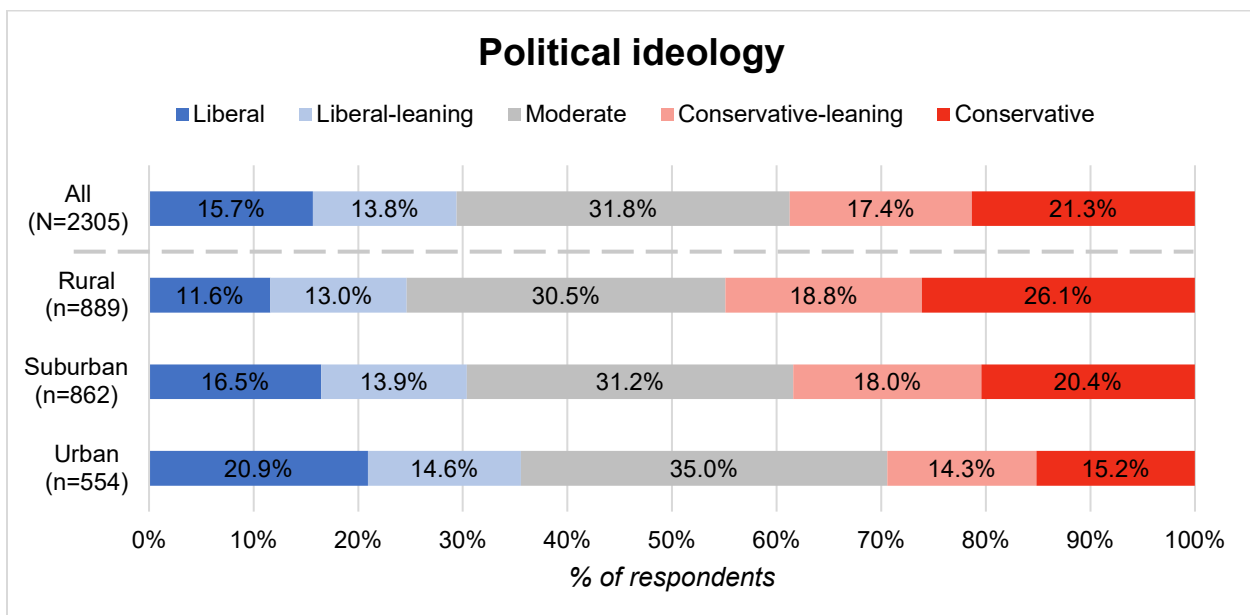


Figure 3. Political ideology of respondents (social and economic issues) by residency.

Attention and relevance of environmental issues

In this section, we outline the relevance of environmental issues for the residents by looking at their attention to various news stories and ratings of personal importance of environmental and agricultural topics.

To understand what topics may be of most relevance to the residents, we asked them to rate how much attention they paid to news stories about different topics, including environment and agriculture and farming. The majority of respondents indicated that they paid at least some attention to environmental (69.3%) and, to a lesser extent, agricultural and farming (52.0%) issues (Figure 4). However, respondents were overall less attentive to these topics compared to national government and politics (73.8%) and local and state affairs (76.9%).

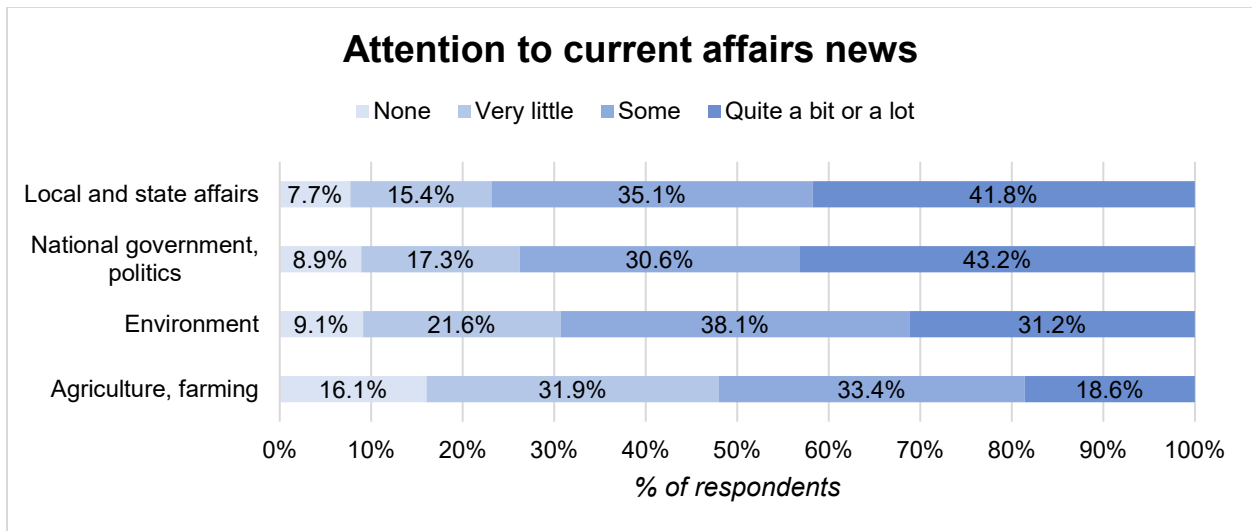


Figure 4. Attention paid to news stories about different current affairs topics. [5-point scale, from 1='None' to 5='A lot,' "In general, how much attention do you pay to news stories about the following topics?"]

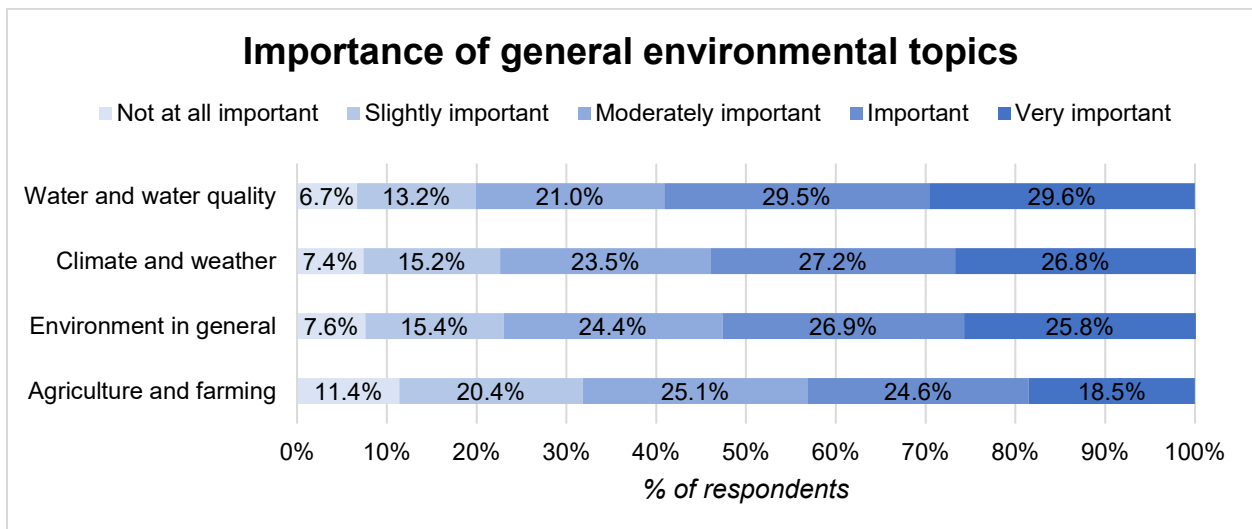


Figure 5. Personal importance of general environmental topics for the respondents. [5-point scale, from 1='Not at all important' to 5='Very important,' "How important are each of these topics to you personally?"]

Following this trend, respondents were also asked how much they had heard about “ongoing preparations in Congress for the 2023 Farm Bill.” The majority of respondents (65.9%) were unfamiliar with the 2023 Farm Bill, either having not heard about the bill (37.7%) or heard very little about it (28.2%). Only 14.6% of respondents had heard either quite a bit or a great deal.

Additionally, respondents were asked to rate how important they felt different environmental topics were to them personally. For general environmental topics, most respondents indicated that water and water quality (59.1%), climate and weather (54.0%), and the environment in general (52.7%) were either important or very important (Figure 5). Few respondents (<10%) thought these issues were not at all important. There was slightly less overall importance placed on agriculture and farming (43.1% important or very important).

Drilling down to more specific topics related to the environment (Figure 6), over half of the sample placed high personal importance on nature and wildlife (59.9%), extreme weather events and natural disasters (57.2%), natural resources and conservation (54.8%), energy and energy conservation (54.1%), and environmental degradation, such as pollution (52.1%). Respondents placed less overall importance on hunting and fishing (36.7%) and social issues

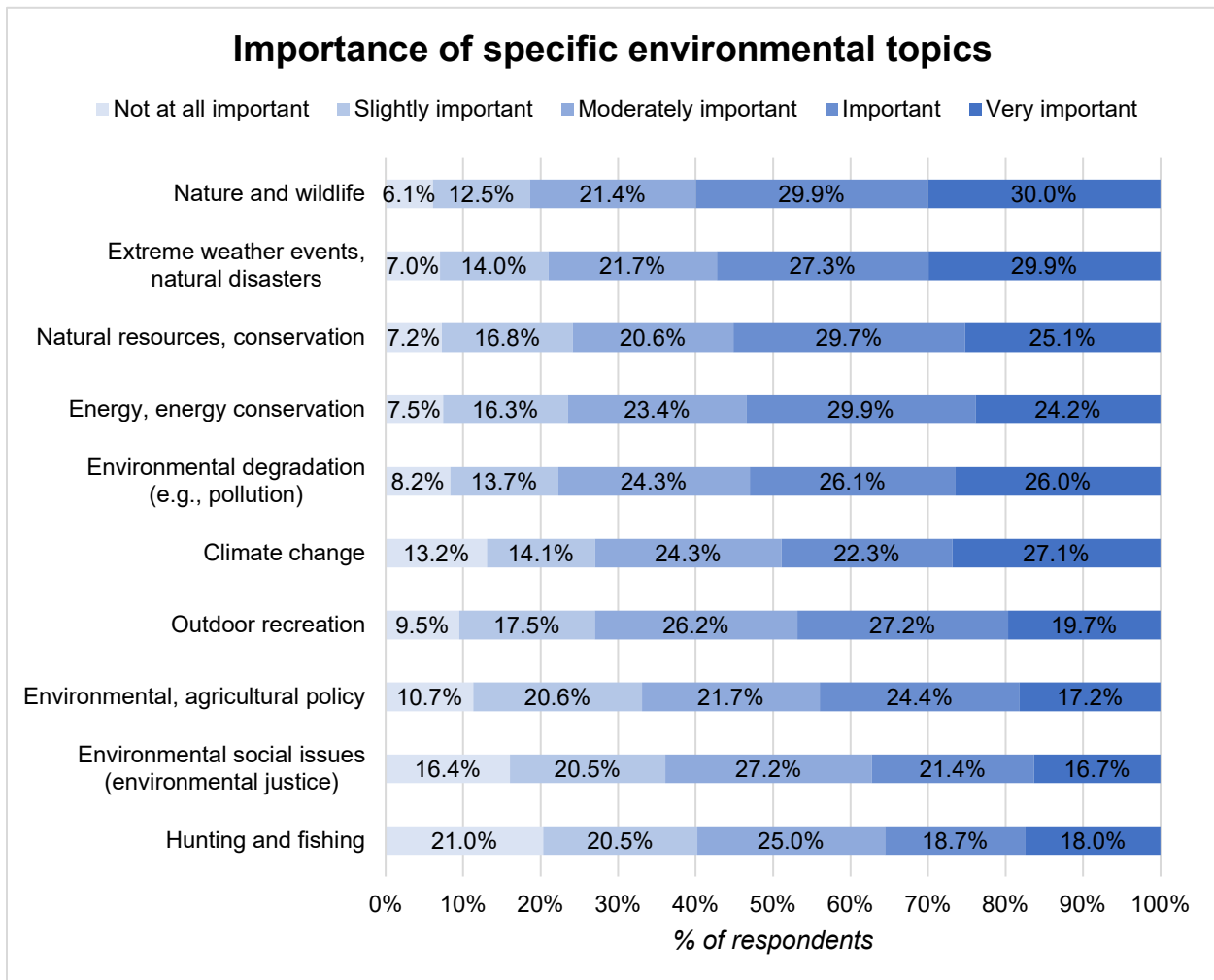


Figure 6. Personal importance of specific environmental topics for the respondents. [5-point scale, from 1=‘Not at all important’ to 5=‘Very important,’ “We’d like to dig a little deeper into specific environmental topics. How important are each of these to you personally?”]

related to the environment such as environmental justice (38.1%). Of note, climate change ranked in the middle of the topics but had more divided opinions on its importance. Although over a quarter of the sample placed high personal importance on climate change (27.1%), another 13.2% indicated it was not at all important.

To better understand views on the importance of climate change and social issues related to the environment, we looked at differences in how respondents rated importance across two factors: political ideology and race.

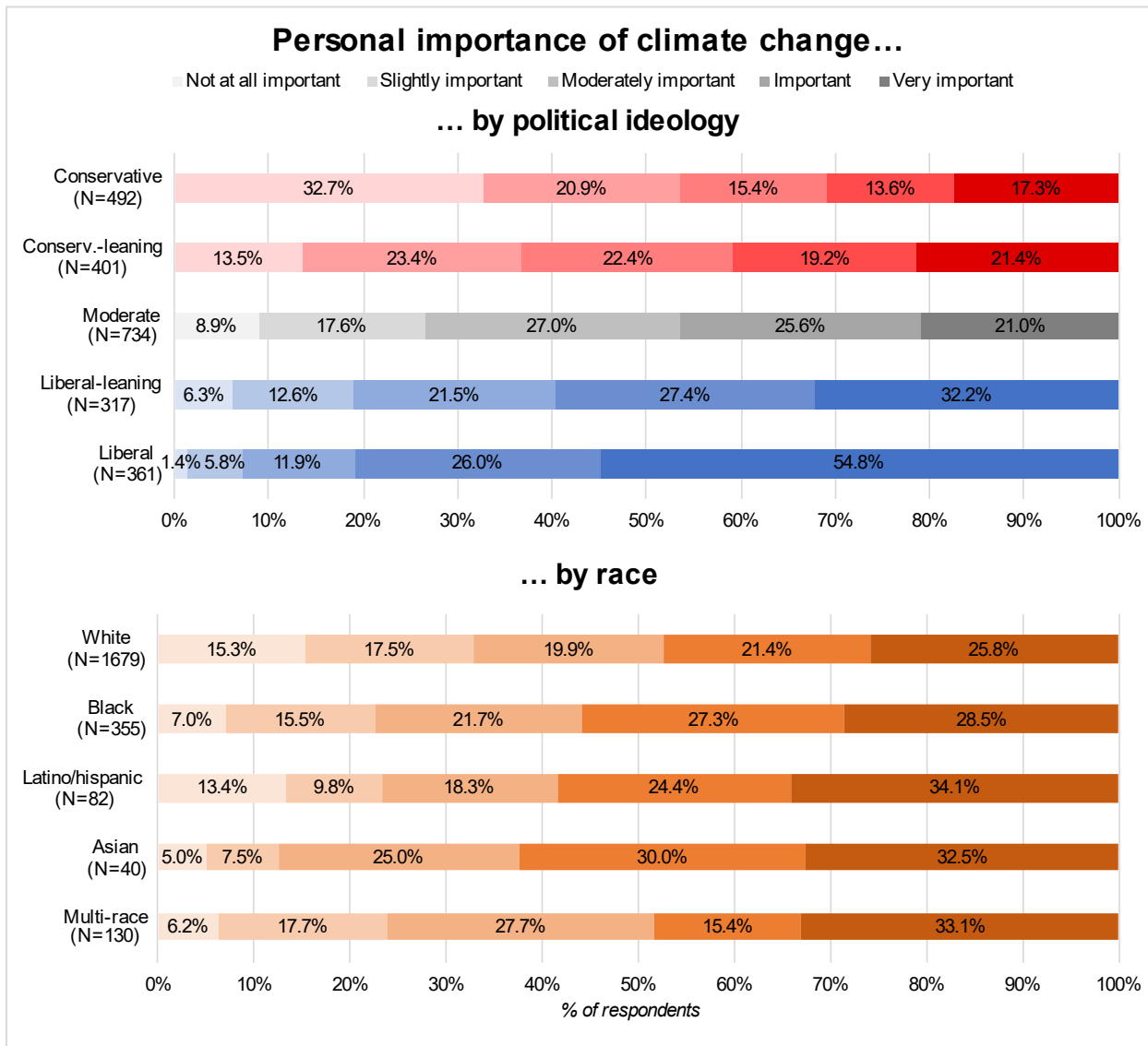


Figure 7a. Ratings of personal importance of climate change by political ideology and race. Political ideology (top): Conservatives and liberals hold opposing views of climate change importance on both extremes. Hues reflect political leanings (red=conservative/leaning, grey=moderate, blue=liberal/leaning). Race (bottom): Views of the importance of climate change also varied by race and ethnicity. (Note: those who selected more than one race were categorized as “multi-race.”) [Across all hues, color saturation represents ratings of importance. 5-point scale, from 1=‘Not at all important’ (lighter) to 5=‘Very important’ (darker).]

Starting with climate change (Figure 7a), ratings of the importance of climate change and political ideology (conservative=high) were significantly correlated (Pearson's $R = -.38$, $p < .001$). Being politically liberal was associated with placing greater personal importance on climate change. Perceived importance of climate change also varied by race [$F(4, 2281) = 5.87$, $p < .001$]. Notably, white and Black respondents significantly differed in their views of climate importance (Games-Howell post hoc, $p < .001$) as did white and Asian respondents (Games-Howell post hoc, $p = .05$). That is, those who identified as white were less likely to rate climate

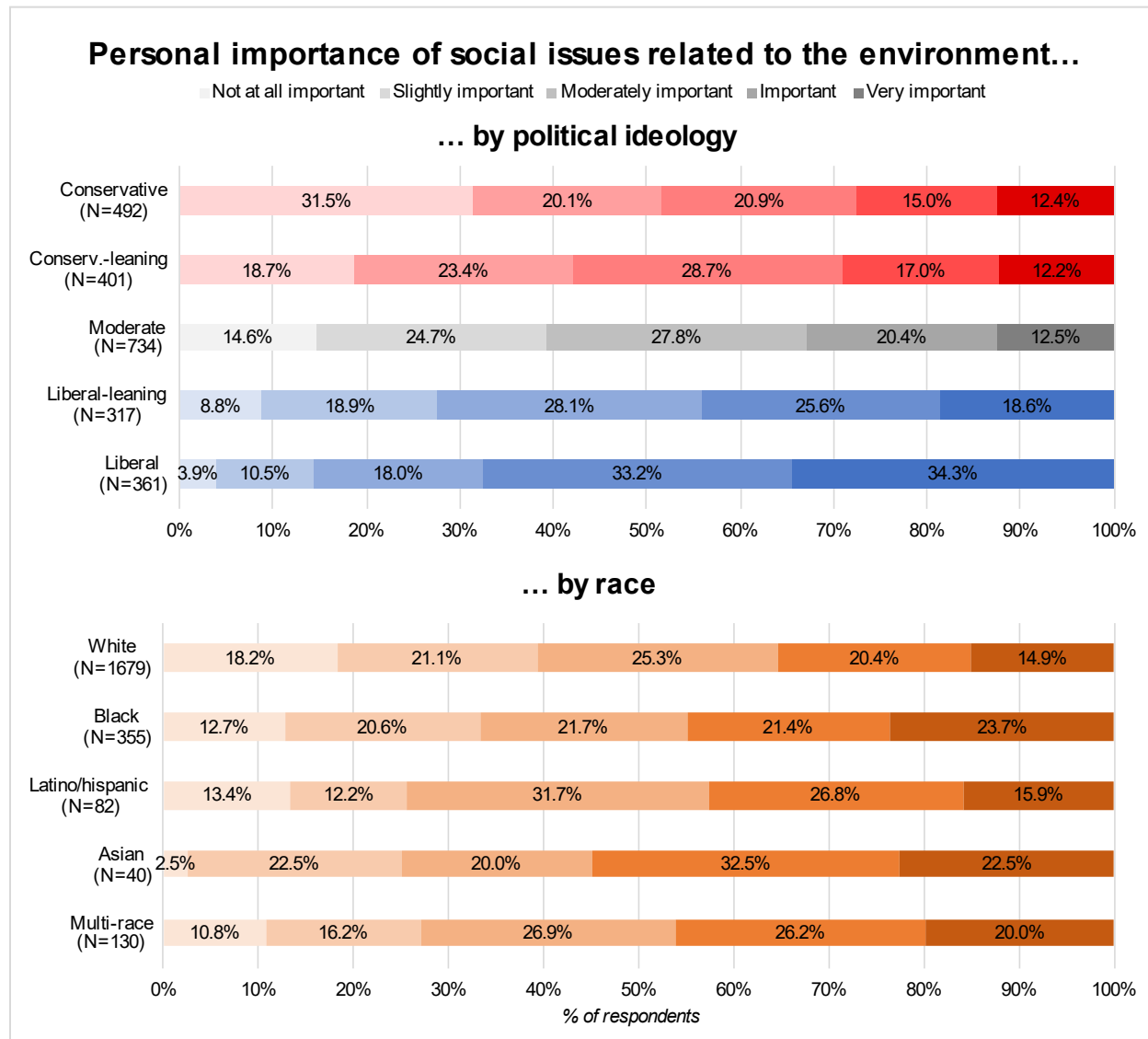


Figure 7b. Ratings of personal importance of environmental social issues (such as environmental justice) by political ideology and race. Political ideology (top): Liberals differ from conservatives and moderates in their views on the importance of environmental justice. Hues reflect political leanings (red=conservative/leaning, grey=moderate, blue=liberal/leaning). Race (bottom): Views of the importance of environmental also varied by race and ethnicity. (Note: those who selected more than one race were categorized as “multi-race.”) [Across all hues, color saturation represents ratings of importance. 5-point scale, from 1=‘Not at all important’ (lighter) to 5=‘Very important’ (darker).]

change as important compared to Black and Asian identifying respondents. The post hoc analysis did not identify any other significant differences between racial groups.

Turning to environmental social issues (Figure 7b), the importance ratings for environmental justice and political ideology (conservative=high) were also significantly correlated (Pearson's $R = -.30$, $p < .001$). Being politically liberal was associated with placing greater importance on environmental justice issues. Once again, perceived importance of environmental justice varied by race [$F(4, 2281) = 7.33$, $p < .001$]. For ratings of the importance of environmental justice, White respondents significantly differed from Black (Games-Howell post hoc, $p = .001$), Asian (Games-Howell post hoc, $p = .03$), and multi-race (Games-Howell post hoc, $p = .02$) respondents. In other words, respondents who identified as white were less likely to rate environmental justice as important on average compared to Black, Asian, and multi-race respondents. The post hoc analysis did not identify any other significant differences based on respondent race.

News and information habits and trust

This section outlines the residents' news media habits and trusted information sources. Specifically, we explore the media sources that respondents indicated they used, their use of social media, and their trust in various sources for information about agriculture and the environment.

When asked about what media sources they used for news about agriculture and the environment (Figure 8), respondents most frequently turned to local television (46.1% at least once per week) and traditional national news networks (40.4%). Respondents were split about their use of social media for environmental news. Over a third of respondents frequently used social media platforms for this type of news (38.2% at least once per week), but another third indicated they never used social media platforms for this purpose (33.6%).

Newspapers and news sites ranked at the bottom of the outlets in terms of overall frequency of use for environmental news, with around half or more of respondents never using national newspapers and magazines (49.2%), online-only news sites (52.8%), or regional newspapers and magazines (57.0%). Local newspapers and magazines were more heavily used. Only a third of the sample reported never using them (34.1%) and just over a quarter used them frequently (27.2% at least once per week).

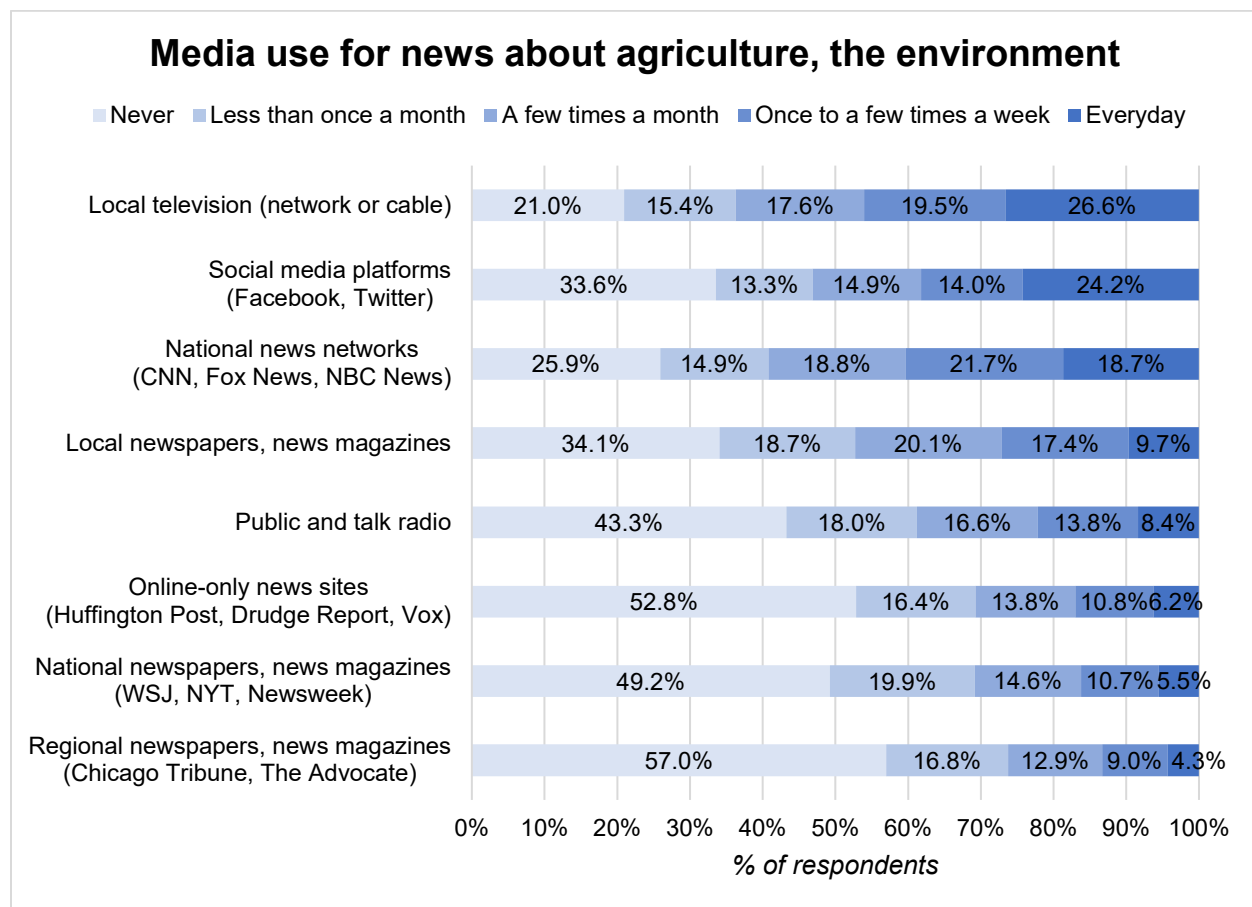


Figure 8. Use of print, broadcast, and online media sources for news about agriculture and the environment, including farming, energy, water, or climate issues.

[5-point scale, from 1='Never' to 5='Everyday,' "How often, if ever, do you use each of the following media for news about agriculture and the environment?"]

To better understand the specific social media platforms where residents may come across information, either purposefully or due to incidental exposure, we asked how frequently respondents used various social media platforms for any purpose (Figure 9). Of the entire sample, only 8.2% reported that they didn't ever use social media.

For those who did use social media, Facebook (68.2% at least once per day) and YouTube (49.4%) were the most heavily used platforms, with around three-fourths or more of the sample using these platforms at least once per week. In addition to YouTube, visual-based media were among the more frequently used platforms, including Instagram (29.2% at least once per day) and TikTok (27.6%). These two platforms, however, also had a large contingent of respondents who indicated they never used them (39.1% and 46.5%, respectively). Comparatively, longer-form platforms, such as Wikipedia and blogs, were used less often. But despite the less frequent usage, Wikipedia in particular was still a popular platform with 62.3% of respondents using it at least once a year.

In tandem with understanding where residents are getting their information, it is also important to understand who they trust for information about agriculture and the environment (Figure 10).

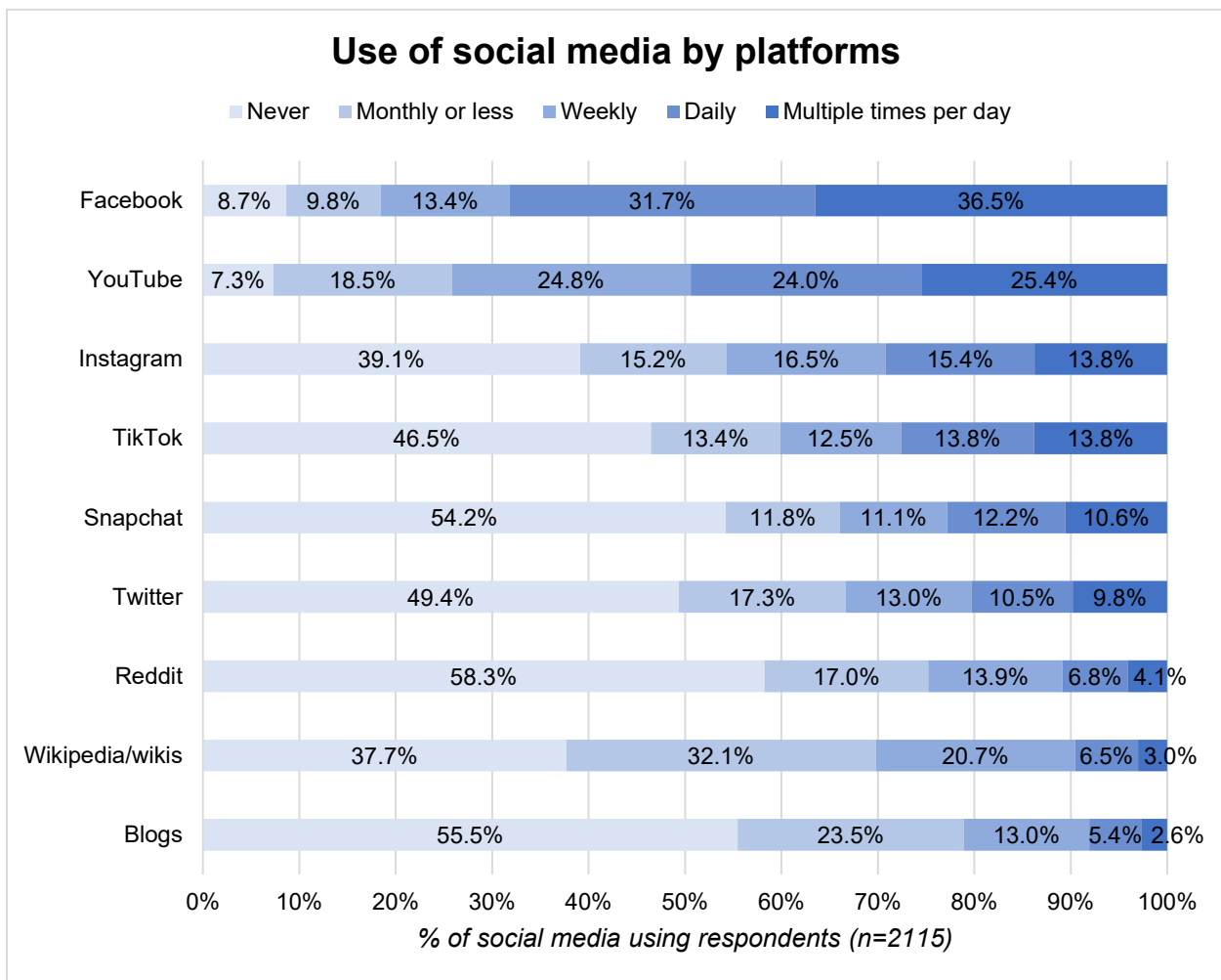


Figure 9. Frequency of social media platform use for general purposes. [8-point scale, condensed, from 0='Never' to 7='Multiple times per day,' "How often do you use the following sites or social media platforms, if at all?"]

Perhaps unsurprisingly, respondents indicated their most highly trusted source of information was friends and family, with 82.1% of respondents trusting them at least somewhat. That is, a majority of residents appear to rely on their personal networks of friends and family as critical sources for information about agriculture and the environment.

Notably, the next highest grouping of sources are professionals and experts. Specifically, scientists and researchers of various affiliations and medical professionals. At the top of this set is university-affiliated agricultural extension specialists, with 80.3% of respondents trusting them at least somewhat. Following closely are the next two highest trusted experts, university scientists (77.9% at least somewhat trust) and medical professionals (77.8%). Finally, trust in industry scientists (72.7%) dips compared to the other groups but are still highly trusted overall.

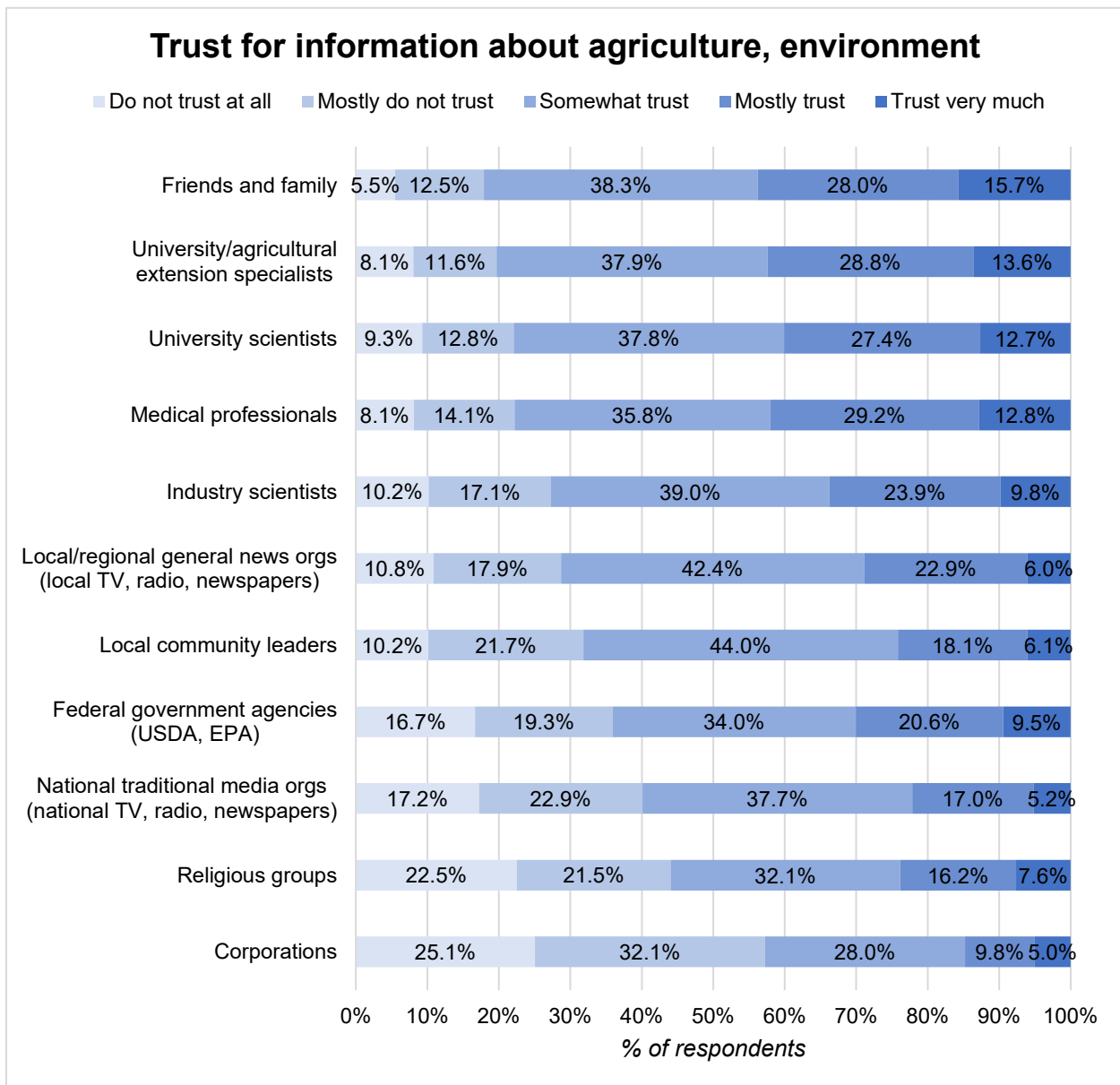


Figure 10. Trust in various sources for information about agriculture and the environment. [5-point scale, from 1='Do not trust at all' to 5='Trust very much,' "How much, if at all, do you trust the following information sources when it comes to agriculture and the environment?"]

To better understand the patterns of trust in university-affiliated scientists and medical professionals as sources of agricultural and environmental information across various segments of residents, we looked for difference in trust based on where respondents lived (Figure 11a). Level of trust did vary significantly by residency for university scientists [$F(2, 2302) = 15.06, p < .001$], university-affiliated agricultural extension specialists [$F(2, 2302) = 3.77, p = .023$], and medical professionals [$F(2, 2302) = 6.66, p = .001$].

For university scientists, rural respondents ($M = 3.1, SD = 1.1$) had significantly lower trust compared to both urban ($M = 3.4, SD = 1.1$; Tukey post hoc, $p < .001$) and suburban respondents ($M = 3.3, SD = 1.1$; Tukey post hoc, $p < .001$). Rural respondents ($M = 3.2, SD = 1.1$) also had slightly lower trust in university-affiliated agricultural extension specialists compared to urban residents ($M = 3.4, SD = 1.1$; Tukey post hoc, $p = .019$). There were no significant differences in the post-hoc analyses for suburban respondents ($M = 3.3, SD = 1.1$). Finally, trust in medical professionals followed a similar pattern. Compared to urban respondents ($M = 3.4, SD = 1.1$), rural respondents ($M = 3.1, SD = 1.1$) had slightly lower trust in medical professionals (Tukey post hoc, $p = .001$). Again, no significant differences emerged through the post-hoc analyses for comparisons to suburban respondents ($M = 3.3, SD = 1.1$).

Together, these comparison analyses demonstrate that respondents had fairly high levels of trust in the scientists and expert groups, with some small significant differences emerging across residency. Although rural residents did have significantly lower levels of trust compared to urban residence across all three expert groups, there were still high base levels of trust among rural residents overall, especially for extension specialists and medical professionals.

Of note, these patterns of trust in scientists have been documented at the national level, such as by [Pew Research Center](#). Despite the overall decades-long decline in trust in the U.S. in various institutions, organizations, and government actors that accelerated during the COVID-19 pandemic, scientists and medical professionals remain highly trusted. This overall high level of trust in scientists and experts, especially those with a university affiliation (extension specialists and university scientists), are positive indicators of the roles that scientists can play in joining the public conversation around agricultural and environmental issues.

For the remaining sources of information on the list, the patterns of trust were more complex. For example, federal government agencies (such as the U.S. Department of Agriculture or Environmental Protection Agency), which also employ scientists and other experts, ranked lower than the other groups of scientists and experts with 64.1% of respondents trusting them at least somewhat. Although still high, there was also a notable increase in the number of respondents who expressed skepticism of the federal agencies, with the percentage who did not trust federal agencies at all jumping to 16.7% (up from 8-10% for scientists).

Turning to the news media, these organizations were also generally trusted. The level of confidence in the news media organization, however, was largely dependent on the reach of their network. For local or regional news organizations, 71.3% of respondents trusted them at least somewhat compared to 59.9% who trusted national traditional media organizations. Local and regional outlets also did not appear to evoke the same negative reactance as there was a smaller contingent of respondents who did not trust them at all (10.8% for local/regional compared to 17.2% for national who do not trust at all).

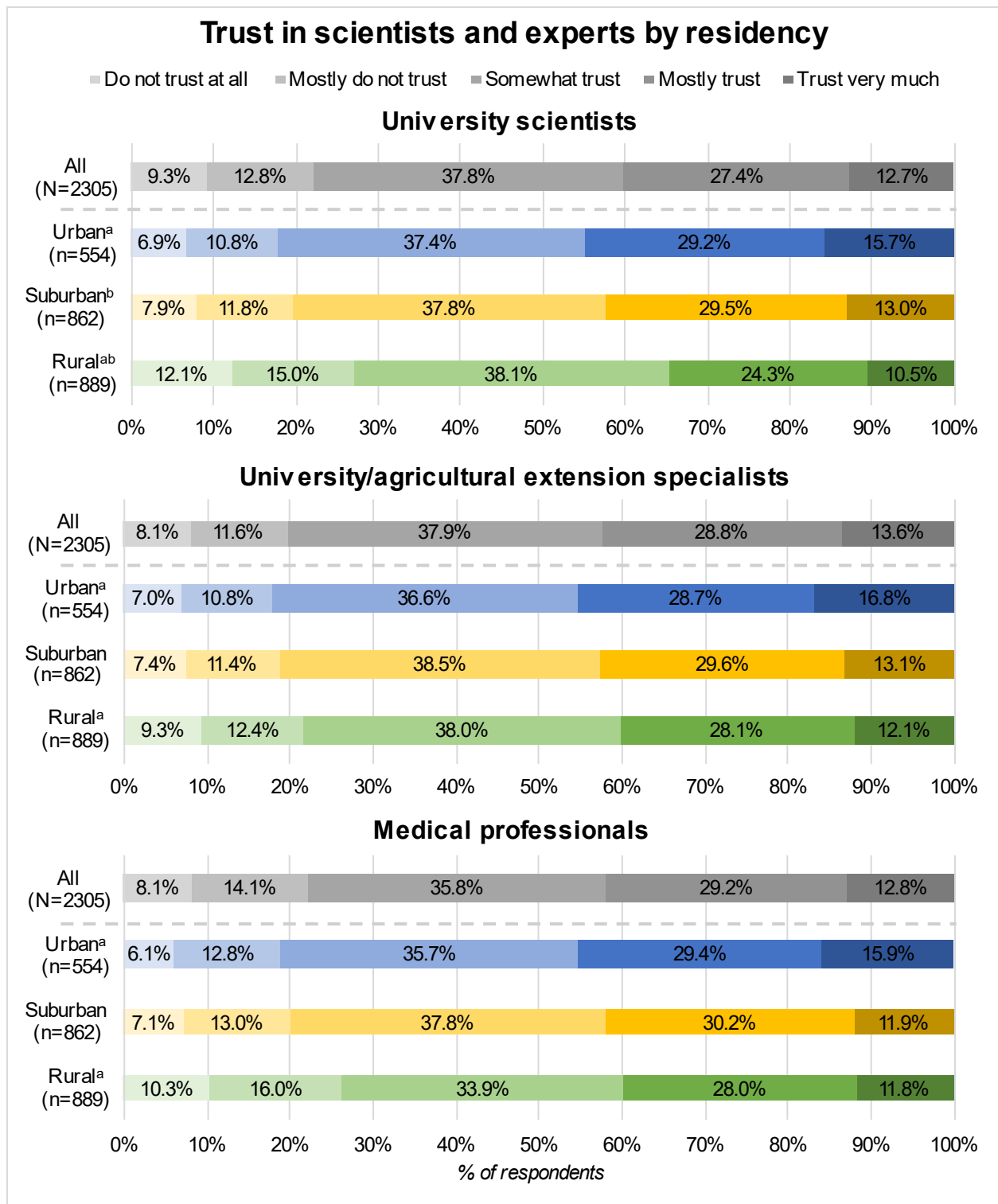


Figure 11a. Level of trust in university-affiliated scientists and medical professionals based on where respondents live (residency).
 Note: matching letters denote significant difference between pairs (Tukey post-hoc, $p < .05$). [Hues reflect different residencies (grey=all, blue=urban, yellow=suburban, green=rural). Across all hues, color saturation represents degrees of trust. 5-point scale, from 1='Do not trust at all' (lighter) to 5='Trust very much' (darker).]

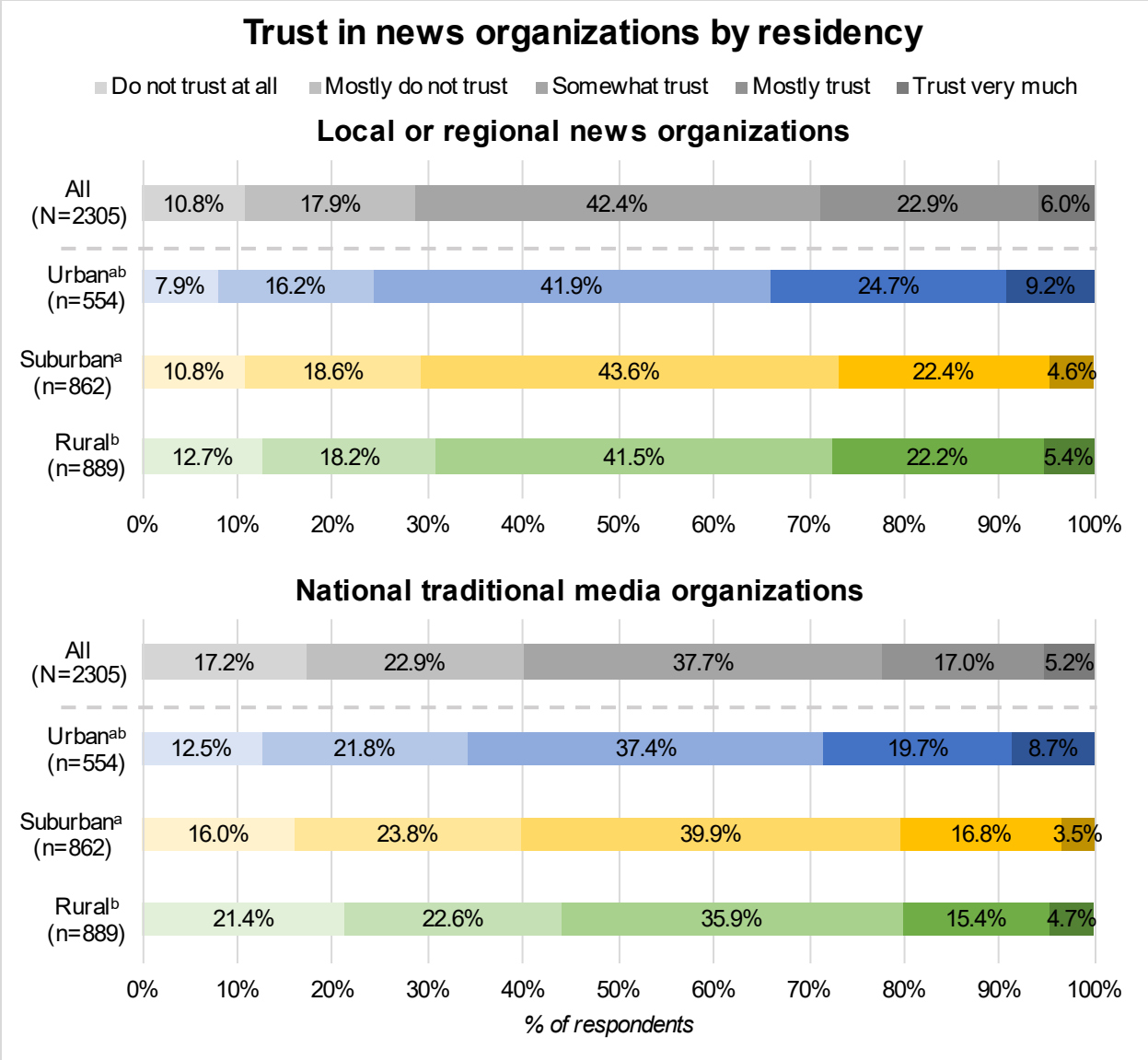


Figure 11b. Level of trust in news organizations based on where respondents live (residency). Note: matching letters denote significant difference between pairs (Tukey post-hoc, $p < .05$). [Hues reflect different residencies (grey=all, blue=urban, yellow=suburban, green=rural). Across all hues, color saturation represents degrees of trust. 5-point scale, from 1='Do not trust at all' (lighter) to 5='Trust very much' (darker).]

Exploring these patterns of trust in new organizations more closely, we again looked for difference in trust based on where respondents lived (Figure 11b). We found that level of trust did vary significantly by residency for local or regional news organizations [$F(2, 2302) = 8.42, p < .001$] and national traditional media organizations [$F(2, 2302) = 13.77, p < .001$].

Starting with local or regional news organizations, urban respondents ($M = 3.1, SD = 1.0$) had significantly higher levels of trust compared to both suburban ($M = 2.9, SD = 1.0$; Tukey post hoc, $p = .002$) and rural respondents ($M = 2.9, SD = 1.1$; Tukey post hoc, $p < .001$). A similar pattern emerged for trust in national traditional media organizations. Once again, urban

respondents ($M = 2.9$, $SD = 1.1$) had significantly higher levels of trust compared to both suburban ($M = 2.7$, $SD = 1.0$; Tukey post hoc, $p < .001$) and rural respondents ($M = 2.6$, $SD = 1.1$; Tukey post hoc, $p < .001$).

Overall, respondents who live in urban areas had a higher degree of trust in news organizations (both national and local/regional) compared to suburban and rural respondents. However, although suburban and rural respondents were more skeptical, most of these respondents still at least somewhat trusted the news media. Compared to national media, local or regional outlets were more trusted and the degree of differences in trust across residency was less pronounced. Compared to their national counterparts, local or regional news outlets may offer unique opportunities to communicate trusted information about agriculture and the environment.

The pattern of split levels of trust was also present for religious groups. While over half of the respondents (56.0%) trusted them at least somewhat, just under a quarter (22.5%) did not trust them at all. Finally, corporations ranked at the bottom of trusted sources. Under half (42.8%) of the sample trusted them at least somewhat while a full quarter (25.1%) did not trust them at all.

Knowledge of environmental topics

In this section, we explore general knowledge about environmental topics by looking at respondents' self-reported levels of information and responses to factual knowledge questions about environmental topics.

To gauge self-reported levels of knowledge, respondents were asked how informed they felt they were about each general environmental topic (Figure 12). Generally, few respondents reported feeling either highly informed or completely uninformed about the various topics. Most respondents indicated being slightly to moderately informed, although the relative proportions varied greatly by topic. Perhaps unsurprisingly, respondents appeared to feel most informed about climate and weather, a topic area that they likely interact with on a daily basis (36.7% informed or very informed, 7.7% not at all informed). This was followed by the environment in general (30.5% informed or very informed) and water and water quality (25.2%). Respondents felt the least informed about agriculture and farming (18.9% informed or very informed, 22.0% not at all informed), something likely outside of most respondents' daily experiences (excepting the 5.6% of farmers in the sample).

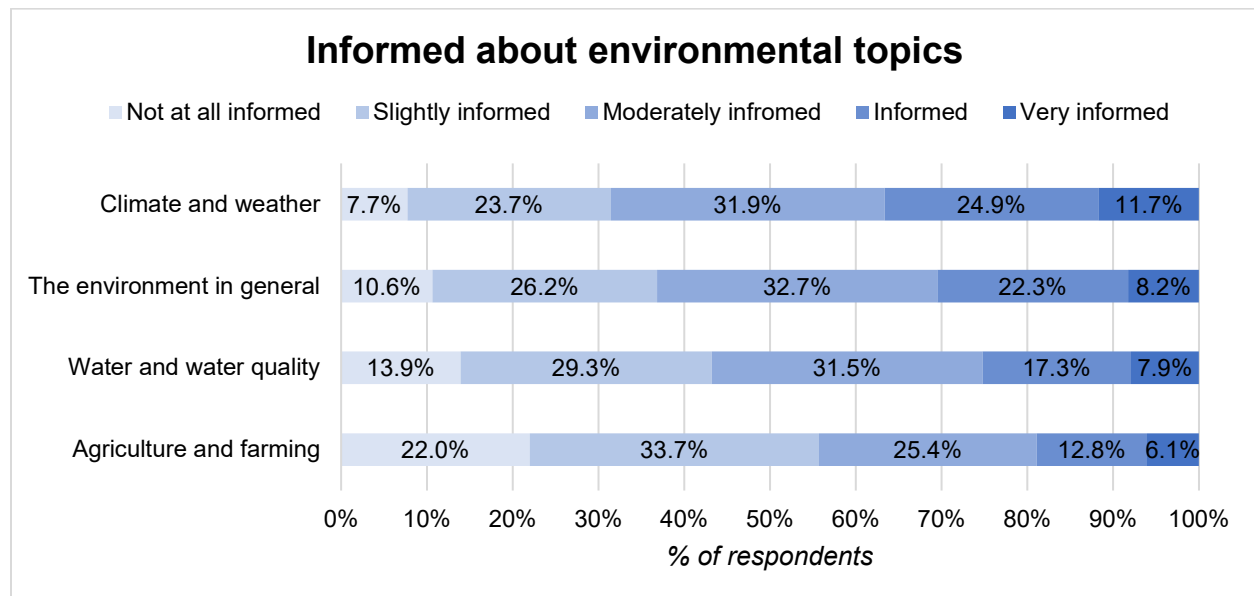


Figure 12. Self-reported level of knowledge (informed) about general environmental topics. [5-point scale, from 1='Not at all informed' to 5='Very informed,' "How informed would you say you are about the following?"]

Finally, as a comparison to their self-reported level of information, respondents were given a series of six true-or-false statements to test their general knowledge about a variety of agricultural and environmental topics. On average, respondents knew the correct answers to three of the six questions ($M = 2.3$, $SD = 1.4$). In terms of distribution, under a fifth of the sample either did not know the correct answer to any questions or knew only one of the answers (18.3%). On the opposite end of the scale, 12.2% were able to answer all or most (five or six) of the questions correctly. The remaining 69.5% of respondents scored somewhere in between (2 correct: 21.7%; 3 correct 28.5%; 4 correct 19.3%).

The knowledge questions covered a variety of topics, ranging from energy usage to climate change to water pollution (Figure 13). Based on the number of correct responses, the most

challenging question addressed dead zones, or hypoxia, with 40% of the sample reporting they didn't know the answer and only about a quarter knowing the correct answer (26.8%). Notably, there appears to be a lingering conflation of the ozone hole and climate change. When asked about a connection between the ozone hole and greenhouse gas effect, 42.5% of respondents falsely linked the two phenomena. Alternatively, respondents appeared to be most familiar with sources of energy in the U.S., with 63.8% of respondents correctly identifying fossil fuels as the main source of electricity generation. Over half of the respondents also successfully identified the definition of a watershed, with 57.4% of respondents answering the question correctly.

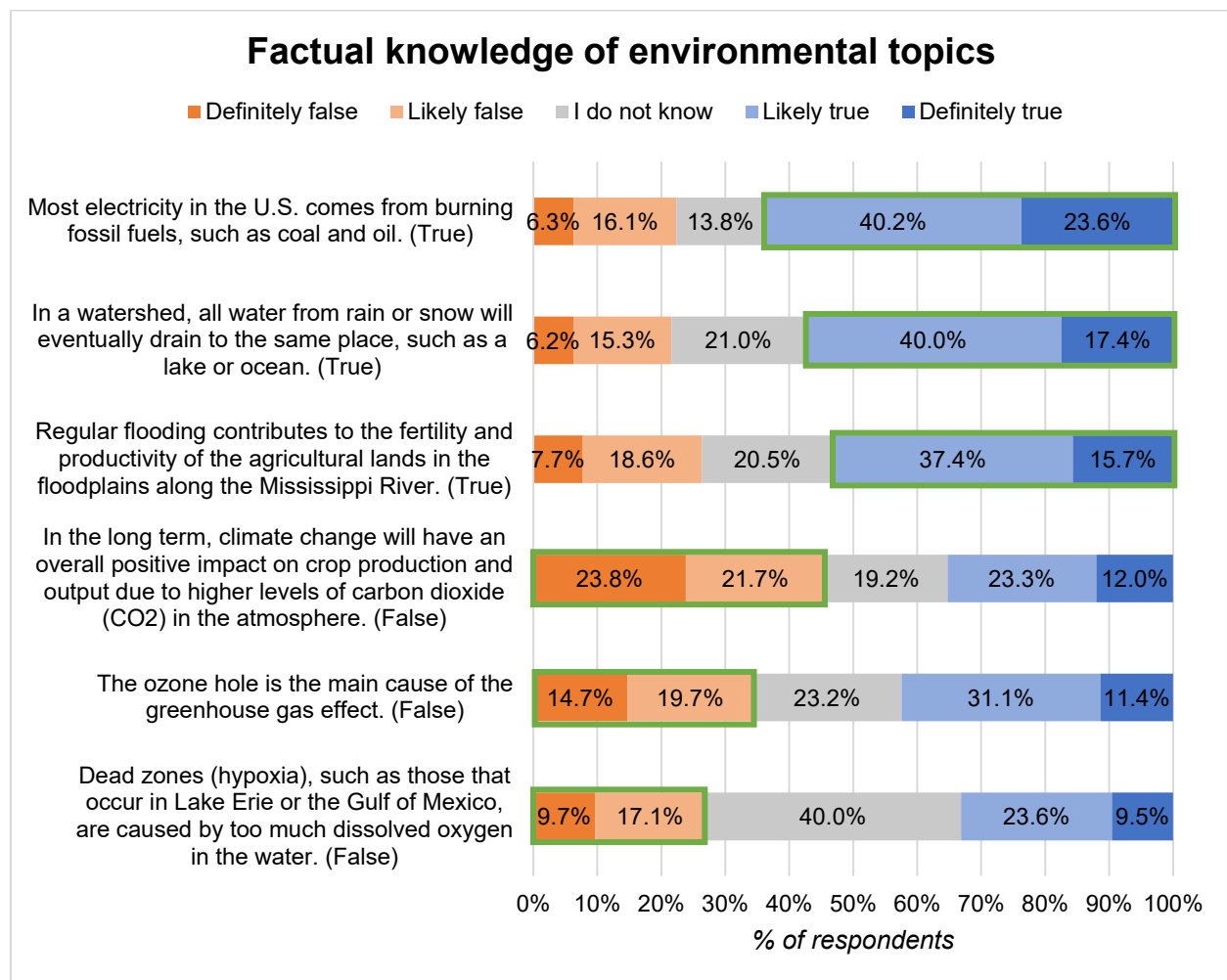


Figure 13. Responses to true-or-false factual questions about environmental topics. Topics include agriculture, energy, and climate change. Correct answers are boxed in green and after each statement. Items in descending order of correct responses (excluding “Don’t know”). [4-point scale, from 1=‘Definitely false’ to 4=‘Definitely true’ with a “Don’t know” option, “Below are some statements about the environment. It is difficult to know the answers to all of these, but could you tell us for each of the following statements if you think it is true or false?”]

Although respondents generally felt they were at least somewhat informed about environmental and agricultural topics, this does not necessarily correspond to their factual knowledge. There remains room for improvement in basic environmental knowledge and literacy among residents.

Humans and the environment

In this section, we explore residents' general attitudes toward humans and the environment. Specifically, we look at how people see nature and the role of humans in addition to religious-based beliefs in humans as stewards of the earth.

To assess general attitudes toward the environment, we asked residents a series of items adapted from the New Ecological Paradigm (NEP). The NEP is an opinion scale that was first developed in 1978 to assess public environmental world views. The scale has been used extensively throughout environmental social science research to quickly gauge pro-ecological thinking and how people view themselves as fitting into nature.

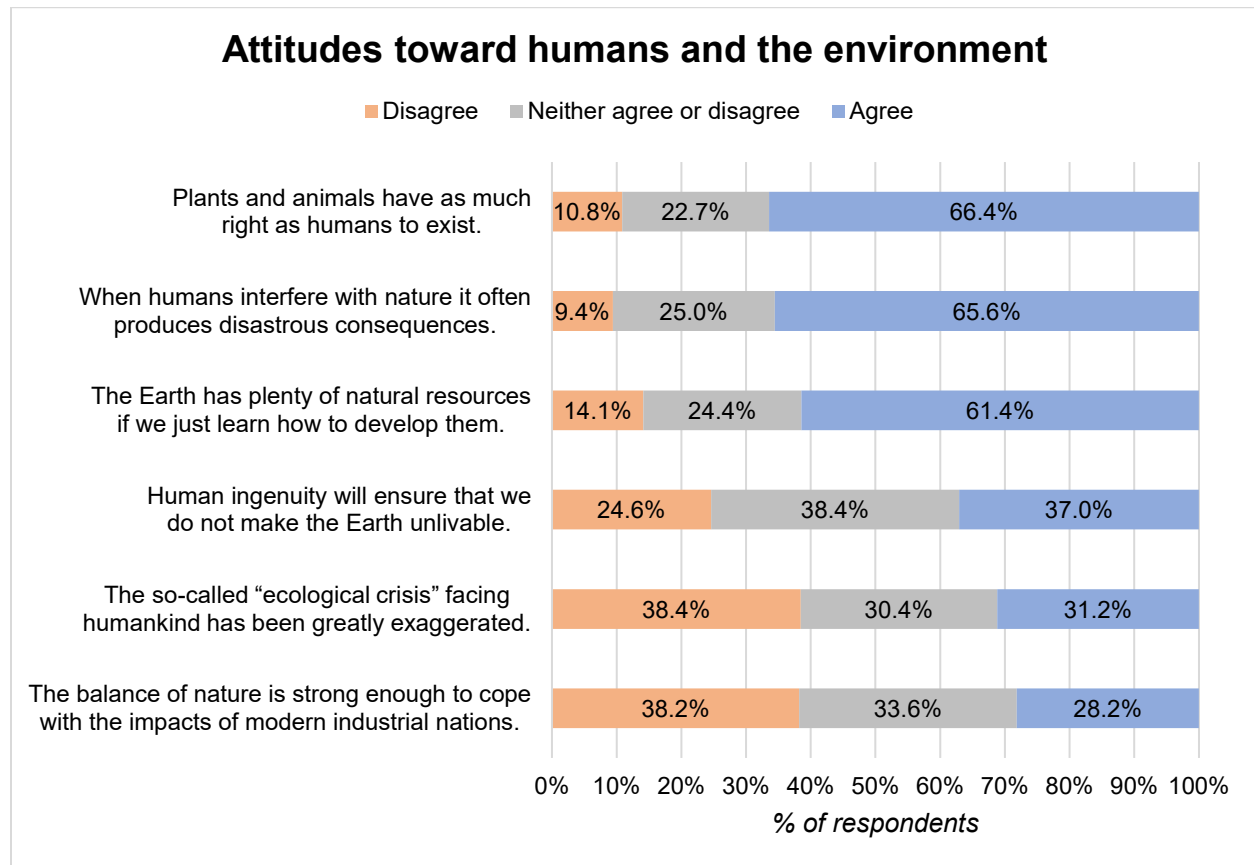


Figure 14. General attitudes toward the environment and the role of humans in nature. Scale items were adapted from the New Ecological Paradigm (NEP) scale. [5-point scale, from 1='Strongly disagree' to 5='Strongly agree,' "Please indicate whether you agree or disagree with the following statements about the environment."]

Looking at responses to the specific items of the NEP (Figure 14), residents generally held some pro-ecological views but also had remaining faith in human capability. The majority of respondents agreed that plants and animals had an equivalent right as humans to exist (66.4% agree) with only 10.8% disagreeing with the concept. There was also general agreement with the idea that human interference produces disastrous consequences (65.6%) and that humans have stressed the earth beyond its ability to manage the current impacts (38.2% disagreeing vs. 28.2% agreeing nature is strong enough to cope). Yet, although attitudes were more split, many respondents were still willing to endorse human ingenuity in ultimately preventing our own

extinction (37.0% agree vs. 24.6% disagree) and in being able to appropriately manage the earth's natural resources (61.4% agree vs. 14.1% disagree).

Additionally, close to two-thirds of the sample expressed some degree of skepticism about the seriousness of the current ecological crisis, with 31.2% believing it to be overblown and 30.4% who were unsure.

Finally, we asked respondents two questions to gauge their faith-based views of humans as stewards of nature in response to recent research that suggests religious-based messages may be effective in motivating pro-environmental behavior (Figure 15). Over two-thirds of the respondents indicated that they believed they had a responsibility to take care of the earth as stewards of God (71.6% agree) and that humans should respect nature because it was created by God (67.7% agree). These results indicate that residents may be basing their views of the environment and their responsibility for it on their religious beliefs, at least in part.

Overall, residents' religious views may play an important role in determining their views of the environment and their responsibility for its care.

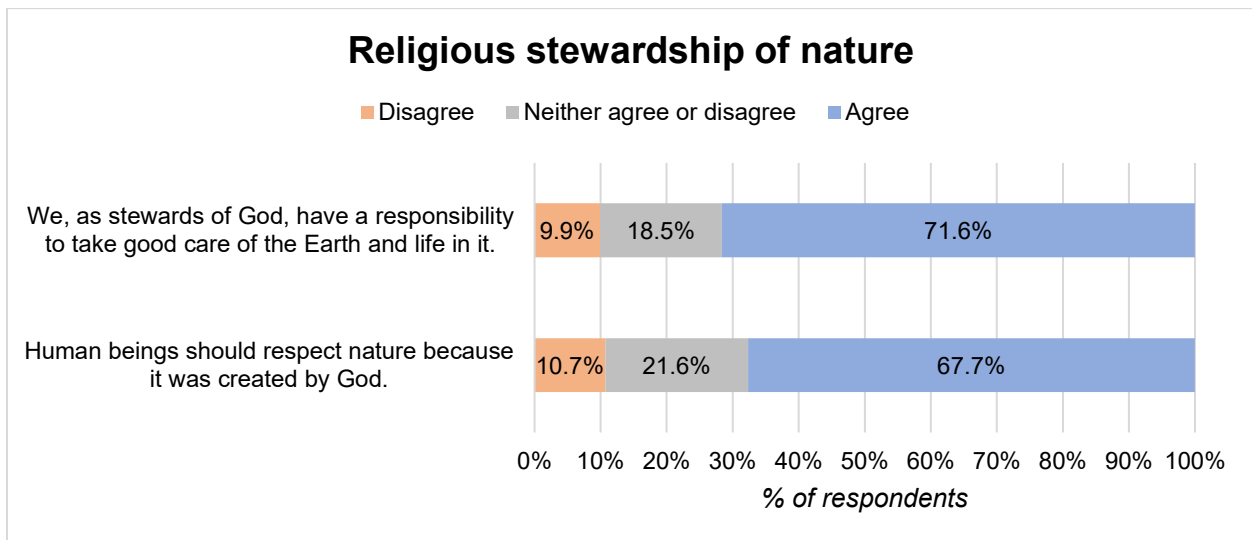


Figure 15. Views about the religious responsibility of humans as stewards of nature. [5-point scale, from 1='Strongly disagree' to 5='Strongly agree,' "How much do you agree or disagree with the following statements?"]

Climate attitudes

In this section, we outline residents' basic attitudes toward climate change, including climate acceptance and beliefs about the causes of climate change.

First, we asked respondents whether they believed in the existence of climate change. The majority of residents (69.2%) indicated that they believed climate change was happening. The remaining respondents were evenly split between those who didn't know (15.4%) and those who did not think climate change was happening (15.4%). (See Appendix A for more information on this question and for responses by state.)

Next, we wanted to understand what residents thought were the causes behind climate change (Figure 16). Just over half (53.4% agree) of respondents indicated that human activities were causing climate change, with an additional 28.4% who weren't sure. A smaller portion, 18.3%, of the sample did not think that human activities caused climate change. We also asked about natural causes. Views about natural causes were more split, with 39.2% indicating that they thought climate change was mostly caused by natural changes and 31.1% disagreeing. Once again, just under a third (29.7%) weren't sure.

Although a majority of respondents agree that climate change is mostly caused by human activities, there may be some remaining uncertainty about the relative impact of the two potential causes. This may be reflected by the almost third of the sample who were not sure about the relative impact of each of the causes, almost half of which (15.5% of total sample) responded that they neither agreed nor disagree for both statements.

Interestingly, although there was a significant negative correlation between the two statements (Pearson's $R = -.35$, $p < .001$) where those who agreed that climate change is mostly caused by human activities were likely to disagree that it is mostly caused by natural changes (and vice versa), the relationship is only moderately strong. Digging deeper into the responses, while the

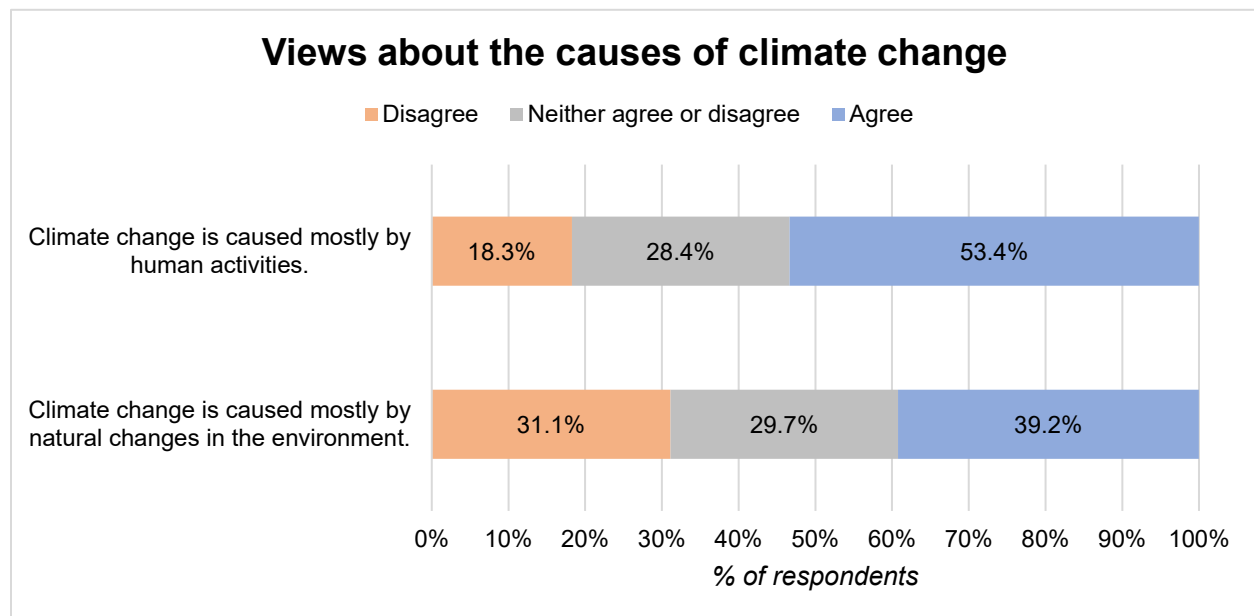


Figure 16. Opinions about the primary causes of climate change. [5-point scale, from 1='Strongly disagree' to 5='Strongly agree,' "How much do you agree or disagree with the following statements about climate change?"]

majority (70.8%) of those who did not think climate change was caused by human activities did think it was caused by natural changes, the pattern is less clean for those who agreed that humans are the driving factor. Among those respondents who view humans as the main cause, only around half (47.4%) disagreed with natural forces being the main cause while a third (31.2%) also agreed with the statement that natural forces are causing climate change. In other words, while a plurality of respondents identified humans as the main cause of climate change *and not natural changes* (25.3% of total sample), a smaller portion held both human *and* natural forces responsible (16.7% of total sample).

Uncertainty around climate change is also reflected in views about the scientific support for climate change (Figure 17). Although the majority of respondents were aware that most scientists think climate change is happening (69.0% agree), almost a quarter were not sure (23.1%) and the remaining 8% disagreed. Further, fewer than half of the respondents (42.1% disagree) rejected the claim that there is disagreement among scientists as to the existence of climate change. A quarter (25.6%) agreed with the statement while a third (32.3%) were not sure. Together, these responses point to remaining confusion about the scientific consensus behind climate change.

Indeed, this is further illustrated by the quarter of respondents (25.3% agree) who believe there is not enough scientific evidence to determine whether climate change is happening or who are not sure about the scientific evidence (28.4%). Under half of the sample believe there is sufficient scientific evidence to support the existence of climate change (46.3% disagree). It appears, then, that the scientific evidence for and consensus around climate change has not been effectively communicated.

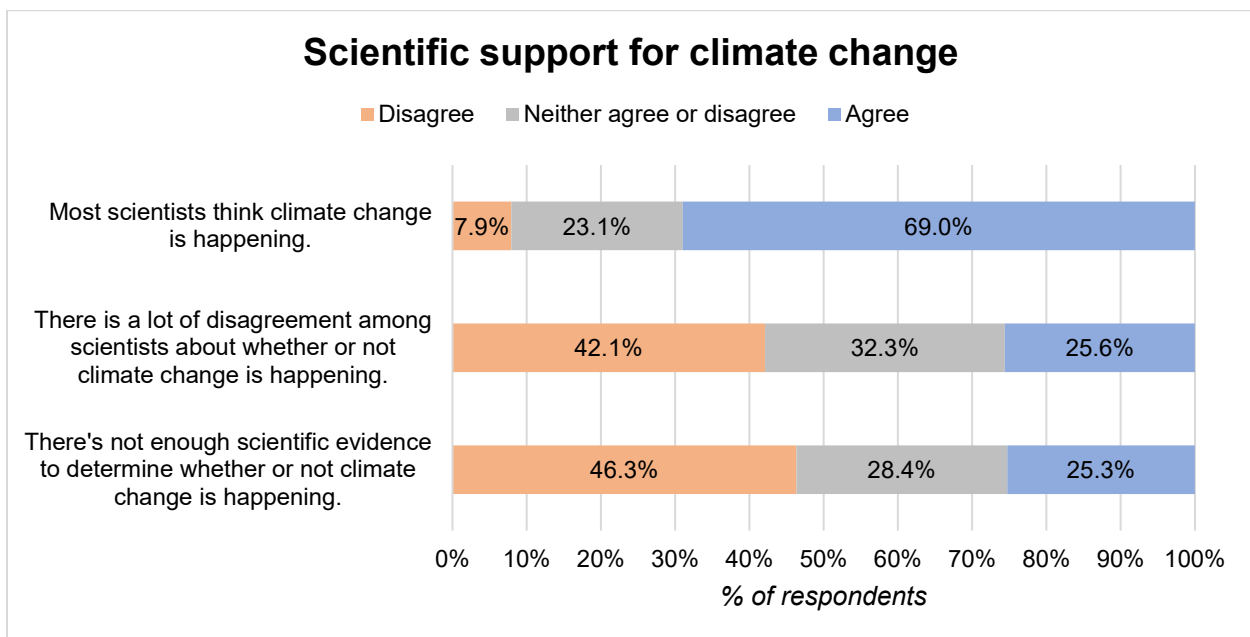


Figure 17. Views about the scientific consensus and support for climate change. [5-point scale, from 1='Strongly disagree' to 5='Strongly agree,' "How much do you agree or disagree with the following statements about climate change?"]

Agriculture and farming practices

In this section, we explore residents' views of agriculture and agricultural practices, including general attitudes toward farming and the impact of farming on the environment, support for current farming practices, and attitudes toward sustainable farming practices.

At a broad level, residents were split in terms of whether they thought that current farming practices were more detrimental than beneficial to the environment (Figure 18). Although almost a third of respondents (30.4% agree) viewed current farming practices as detrimental, just over a quarter (26.6%) disagreed. A plurality of respondents (43.0%) were unsure about the relative harms and benefits. However, most respondents agreed (64.2%) that managing environmental problems on farmland is a high priority.

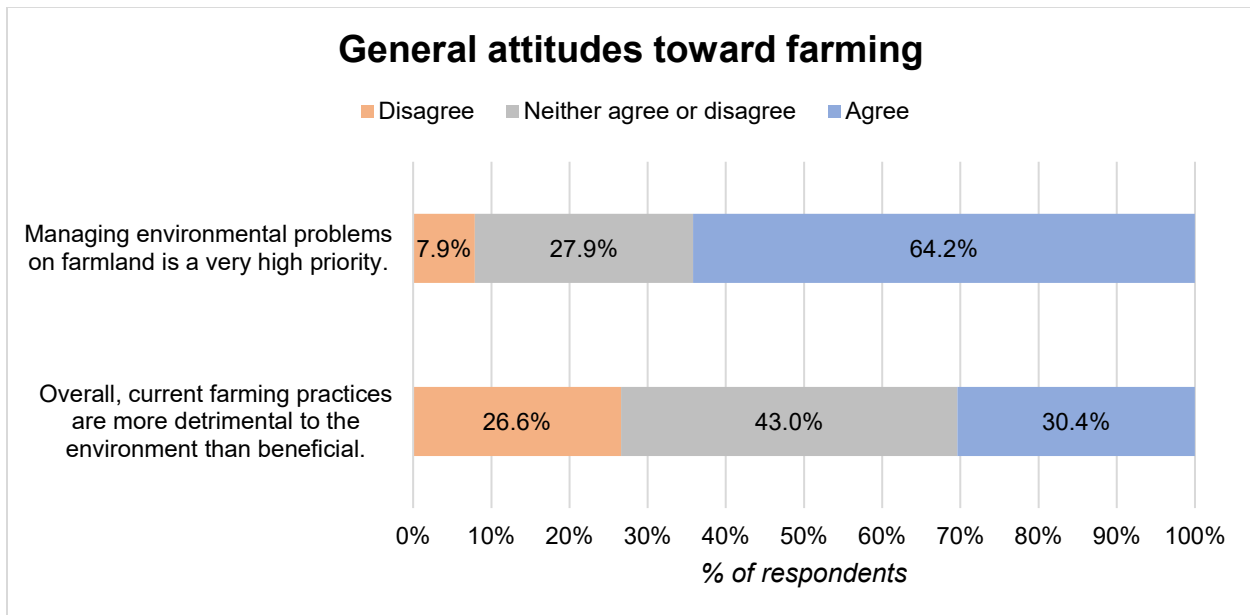


Figure 18. General attitudes toward farming and current agricultural practices. [5-point scale, from 1='Strongly disagree' to 5='Strongly agree,' "The next section focuses on agriculture. How much do you agree or disagree?"]

To better understand attitudes toward farming, we explored responses across those who do and do not have a personal connection to farming (Figure 19). We defined those with a personal connection to farming as respondents who indicated they themselves and/or an immediate family member were farmers ($n=369$). Compared to those without a direct connection ($M = 3.7$, $SD = .9$), respondents with a personal connection to farming ($M = 3.9$, $SD = 1.0$) were more likely to place greater importance on managing environmental problems on farmland, $t(2303) = -2.6$, $p = .01$. We did not find any significant difference in views on the relative harms and benefits of farming for the environment, $t(473.6) = -.4$, $p = .66$.

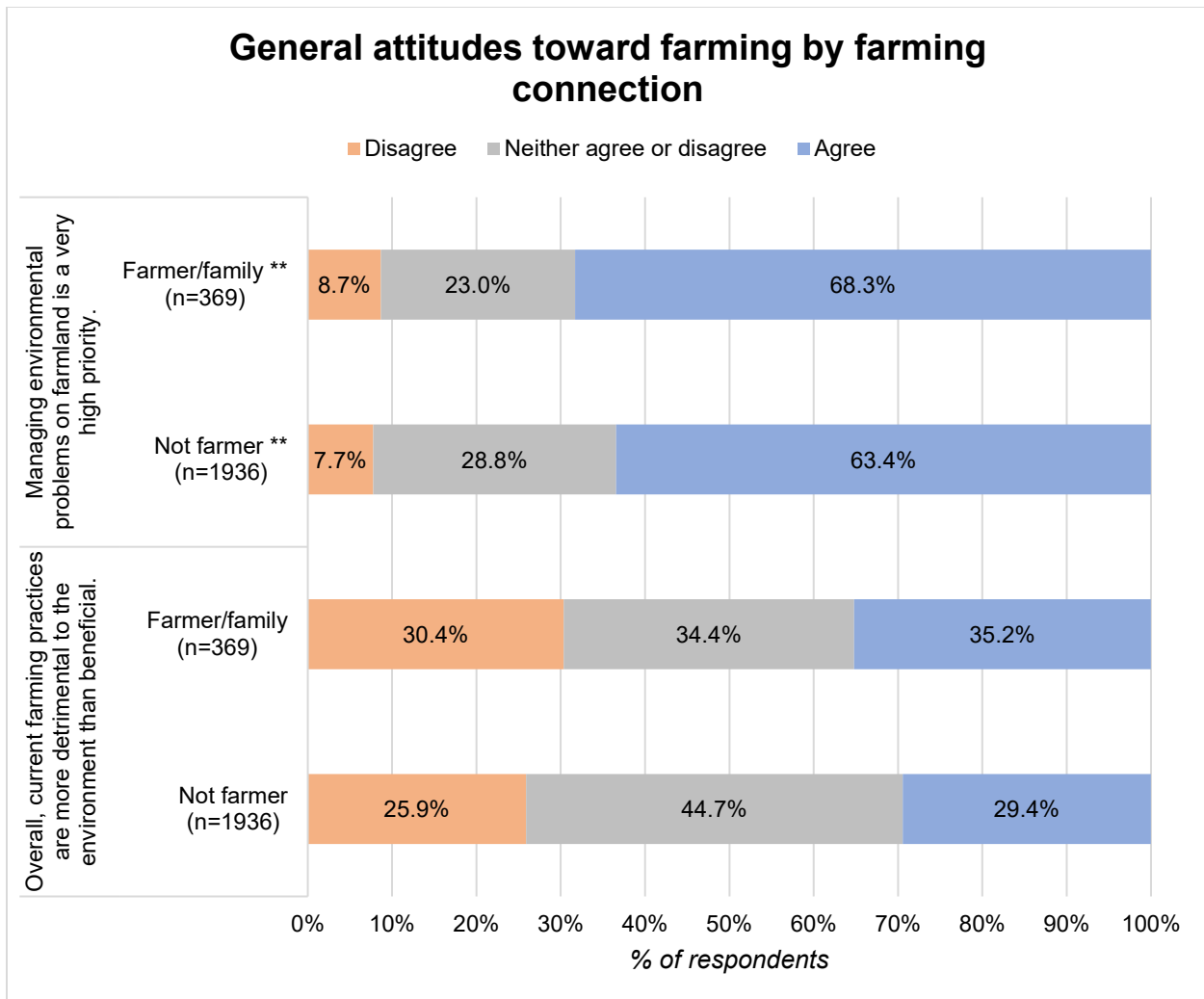


Figure 19. General attitudes toward farming by personal connection to farming. A personal connection to farming (farmer/family, n=369) was measured as those who are either a farmer themselves or have an immediate family member who is a farmer. ** significant difference (independent t-test), $p < .05$ [5-point scale, from 1='Strongly disagree' to 5='Strongly agree,' "The next section focuses on agriculture. How much do you agree or disagree?"]

Turning to specific farming practices, residents held varying levels of support for different current agricultural practices (Figure 20). Overall, residents had greater support for grass-fed or free-range animal operation (71.3% approve), organic farming (61.9% approve), and traditional farming practices such as row cropping (57.4% approve). There was less outright approval for sustainable farming practices such as no-till farming (46.6% approve) or general runoff containment practices such as buffers or filter strips (44.3% approve). While a plurality of residents still indicated their approval, a greater number of respondents indicated they were indifferent or unsure about these specific practices. Runoff containment practices had the greatest number of "I don't know" responses (17.1%) which may indicate residents are generally less familiar with them.

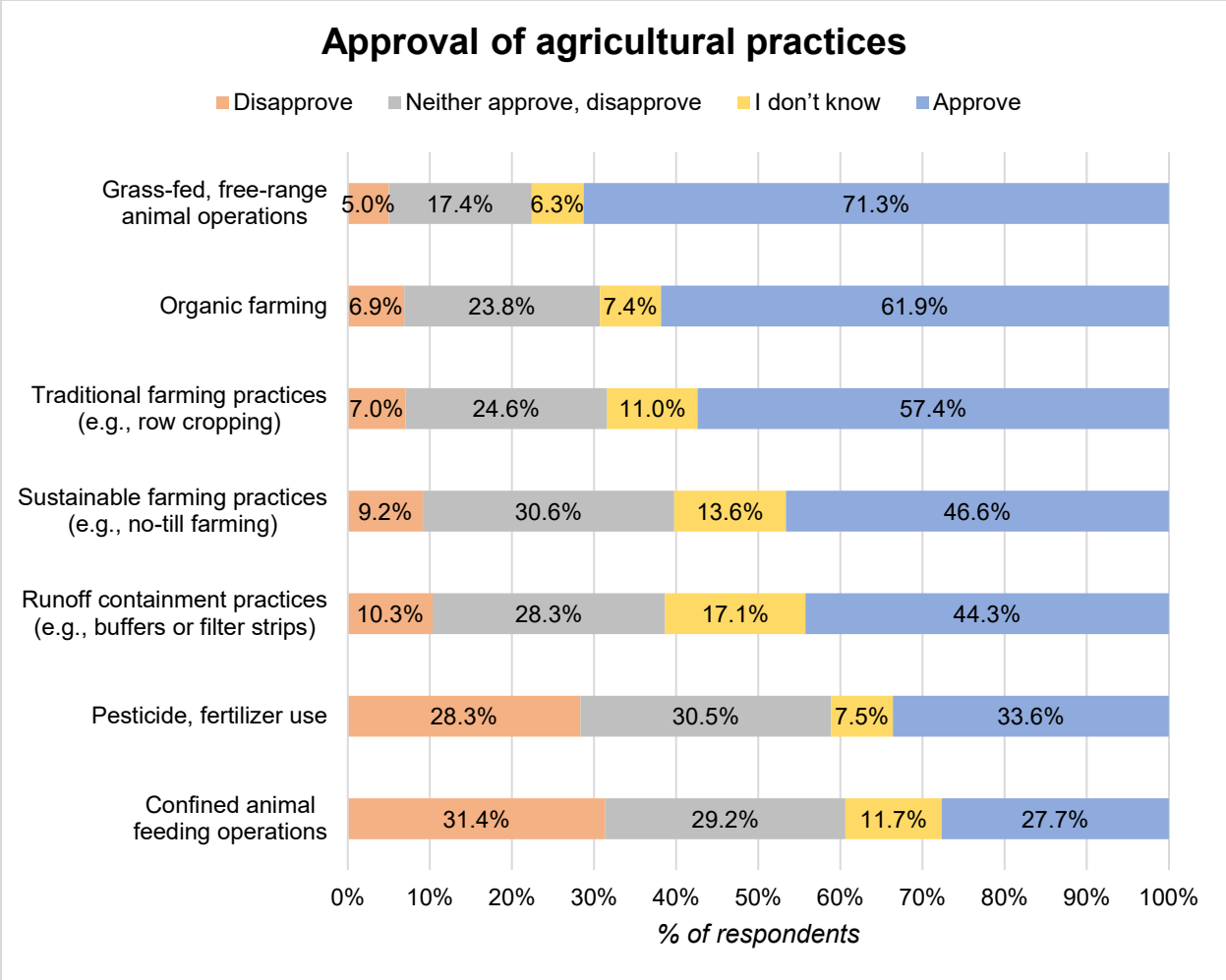


Figure 20. Approval of current agricultural and farming practices. [5-point scale, from 1=‘Strongly disapprove’ to 5=‘Strongly approve’ plus ‘I don’t know,’ “We want to know what you think about specific agricultural practices. For each, indicate if you generally approve or disapprove of its use, or don’t know enough to respond.”]

At the bottom of the approved list fell more conventional and less “natural” farming practices, pesticide and fertilizer use and confined animal feeding operations. Overall support for pesticide and fertilizer use was lower (33.6% approve) and there were also greater levels of disapproval (28.3%). Many respondents were unsure or indifferent about these practices (38.0%). Confined animal feeding operations had less outright support (27.7% approve) and slightly greater disapproval (31.4%). More respondents fell into the unsure or indifferent categories (40.9%). For these two practices in particular, respondents may be considering both positive and negative aspects and may not feel able to make a judgement call in either direction.

Next, we asked residents about their views of the importance and effectiveness of sustainable farming practices (Figure 21). Most respondents felt it was important for the agricultural sector to adopt more sustainable farming practices (66.2% agree), with only 6.3% of respondents disagreeing with the statement. Respondents also felt that sustainable farming practices were necessary to address current water issues (62.8% agree) and an effective strategy to manage environmental issues (62.0% agree). While few respondents disagreed with the relevance and

importance of sustainable farming (<8%), between a quarter and a third of respondents were indifferent or unsure (neither agree nor disagree).

Delving deeper into respondents' attitudes toward sustainable farming, we also looked at responses across those who do and do not have a personal connection to farming (see definition above; Figure 22). Although we did not find a significant difference in the overall importance placed on adopting sustainable farming practices between those with and without a direct connection to farming [$t(2303) = -1.5, p = .14$], we did find differences in their views of its usefulness and effectiveness. Specifically, compared to those without a direct connection to farming, respondents with a personal connection were more likely to view sustainable farming as both necessary for addressing current water issues [$t(2303) = -3.2, p = .001$] and an effective strategy for managing environmental issues [$t(2303) = -2.2, p = .03$]. Generally, those who lacked a personal connection to farming appeared to be more likely to respond with indifference or were unsure (select neither agree nor disagree) about sustainable farming.

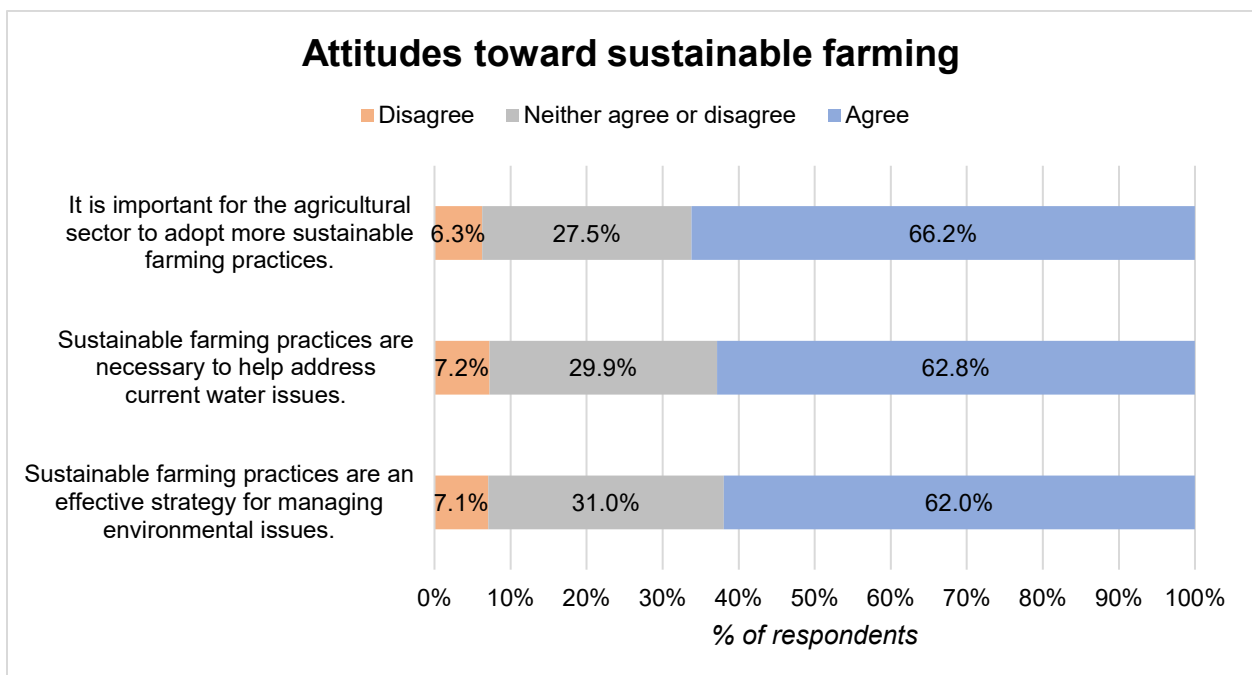


Figure 21. Attitudes toward sustainable farming practices. [5-point scale, from 1='Strongly disagree' to 5='Strongly agree,' "The next section focuses on agriculture. How much do you agree or disagree?"]

Of note, this unwillingness or reluctance to establish a firm opinion appeared across many of the farming-related questions. For each, a considerable portion of the responses fell into the "neither agree nor disagree" or "I don't know" categories (around 23-45%), generally larger than the proportion for other topic areas in the survey. This could indicate a lower degree of familiarity with farming (i.e., don't feel they know enough to make a decision or form a strong opinion) or a greater degree of indifference (i.e., have not thought about the topic and/or do not feel strongly) toward farming practices.

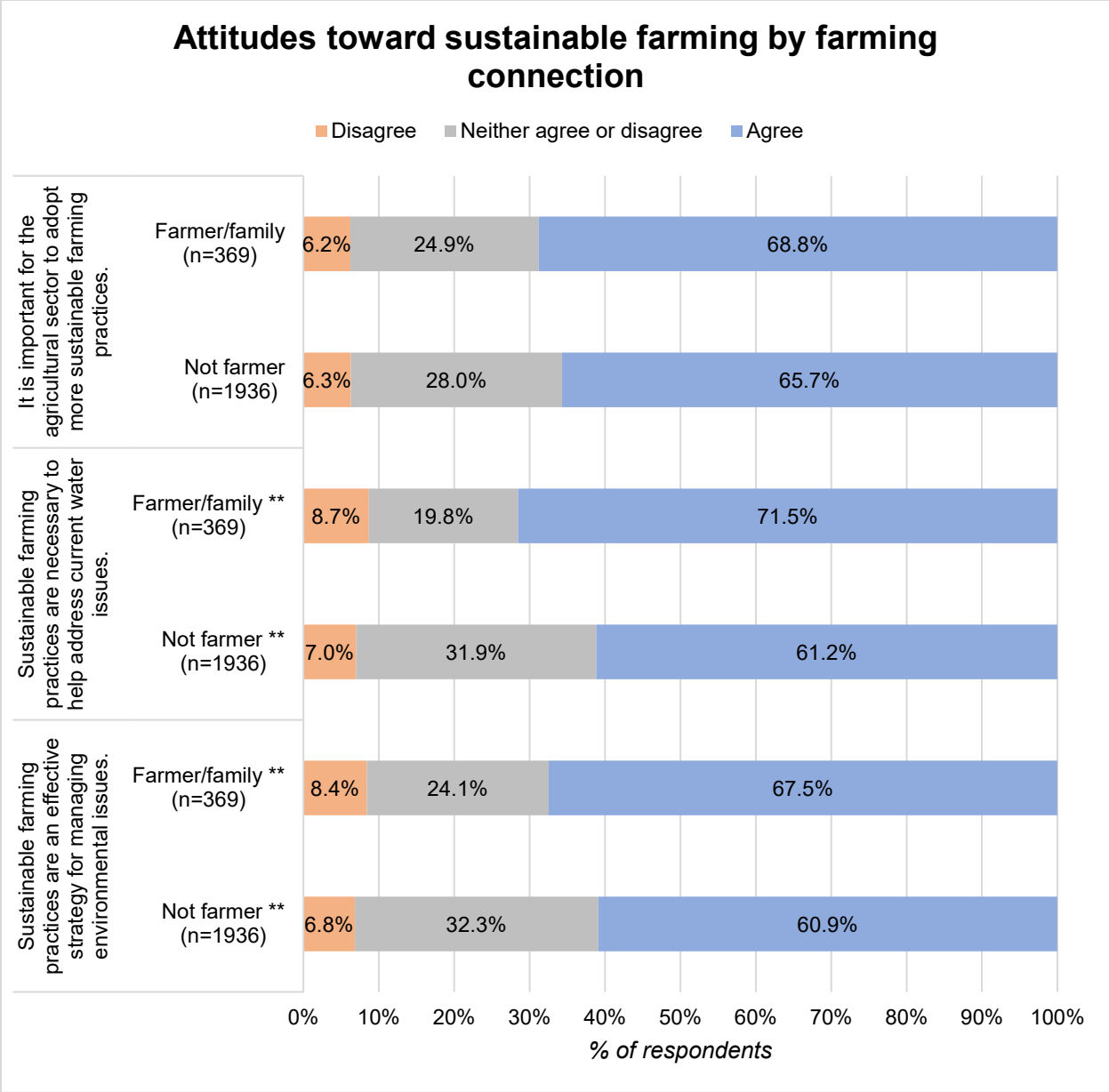


Figure 22. Attitudes toward sustainable farming practices by personal connection to farming. A personal connection to farming (farmer/family, n=369) was measured as those who are either a farmer themselves or have an immediate family member who is a farmer.

** significant difference (independent t-test), $p < .05$

[5-point scale, from 1='Strongly disagree' to 5='Strongly agree,' "The next section focuses on agriculture. How much do you agree or disagree?"]

Concern and seriousness of current environmental problems

This section outlines residents' overall concern about current environmental problems facing their states, including how worried residents are about environmental issues in their regions and ratings of seriousness for specific issues facing their state.

When asked how worried they were about environmental issues in their region, most residents indicated they were at least somewhat worried (Figure 23). Only around 10% of respondents were not at all worried about regional environmental issues (9.8%) while a third indicated they were either worried or very worried (33.8%).

Worry about environmental issues was also connected to respondents' age. There was a weak but significant correlation between age and worry (Pearson's $R = -.11$, $p < .001$), where younger respondents were more likely to report being worried compared to older respondents. Concern also varied slightly across respondents' states. More residents of Louisiana and Kentucky, for example, fell into the "worried or very worried" category compared to those in Arkansas.

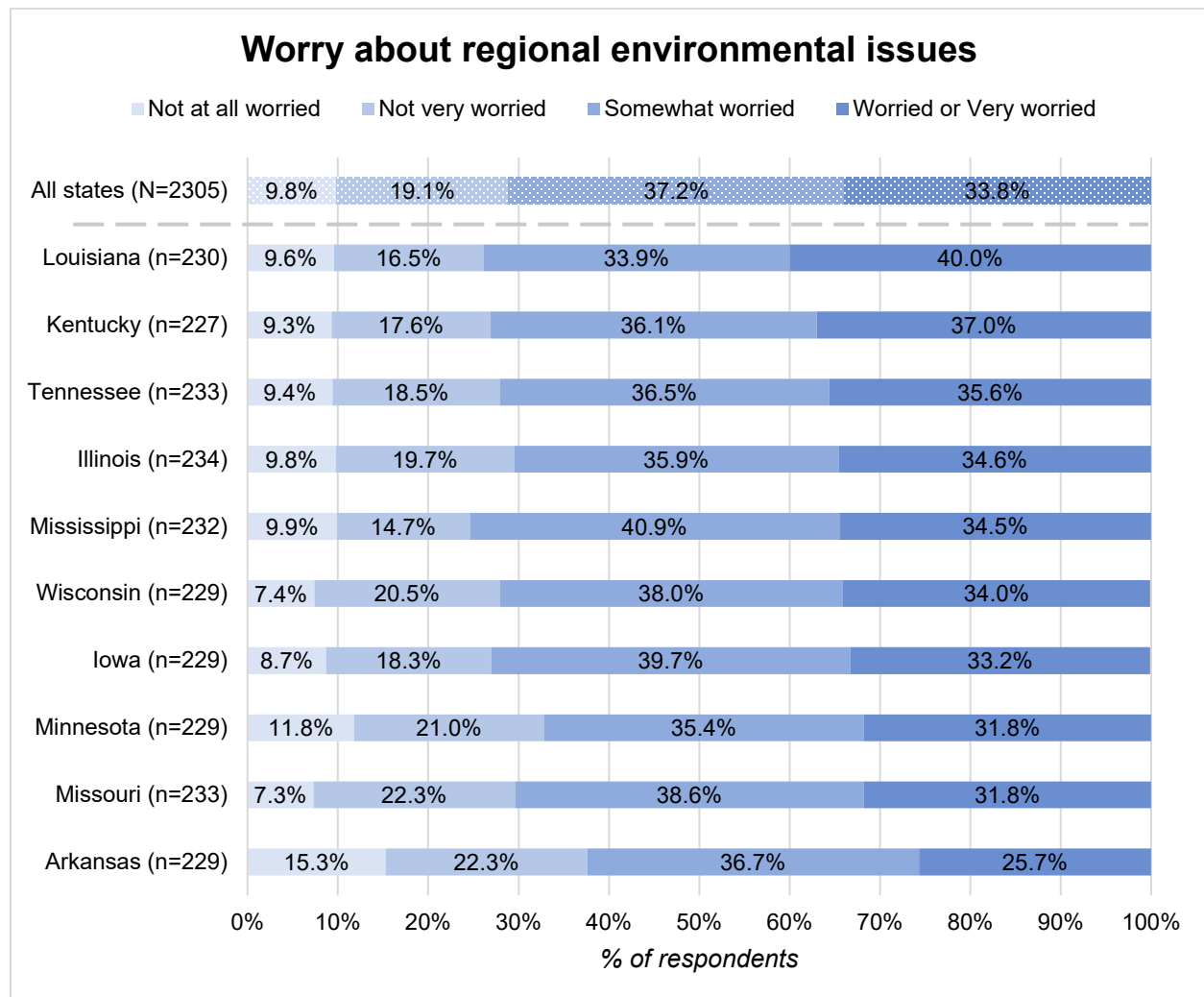


Figure 23. Level of concern about environment issues impacting the region across states. Responses are also split across the states where respondents live. [5-point scale, from 1='Not at all worried' to 5='Very worried,' "How worried are you about environmental issues in your region?"]

We also asked residents to rate how serious they felt various environmental issues were within their states (Figure 24). Generally, respondents indicated that industrial pollution (65.1%), extreme weather events (64.9%), sewage and urban pollution (64.1%), and land development (63.0%) were at least somewhat of a serious concern. Generally, weather-related events and pollution appeared to concern residents.

Although more than half of the respondents still indicated it was at least somewhat of a serious problem, the *quantity* of available water was rated as the least serious concern among all the topics (52.3% at least somewhat). Almost a quarter of respondents (22.7%) indicated it was not at all a serious problem.

For ratings of the seriousness of current problems by state, see Appendices.

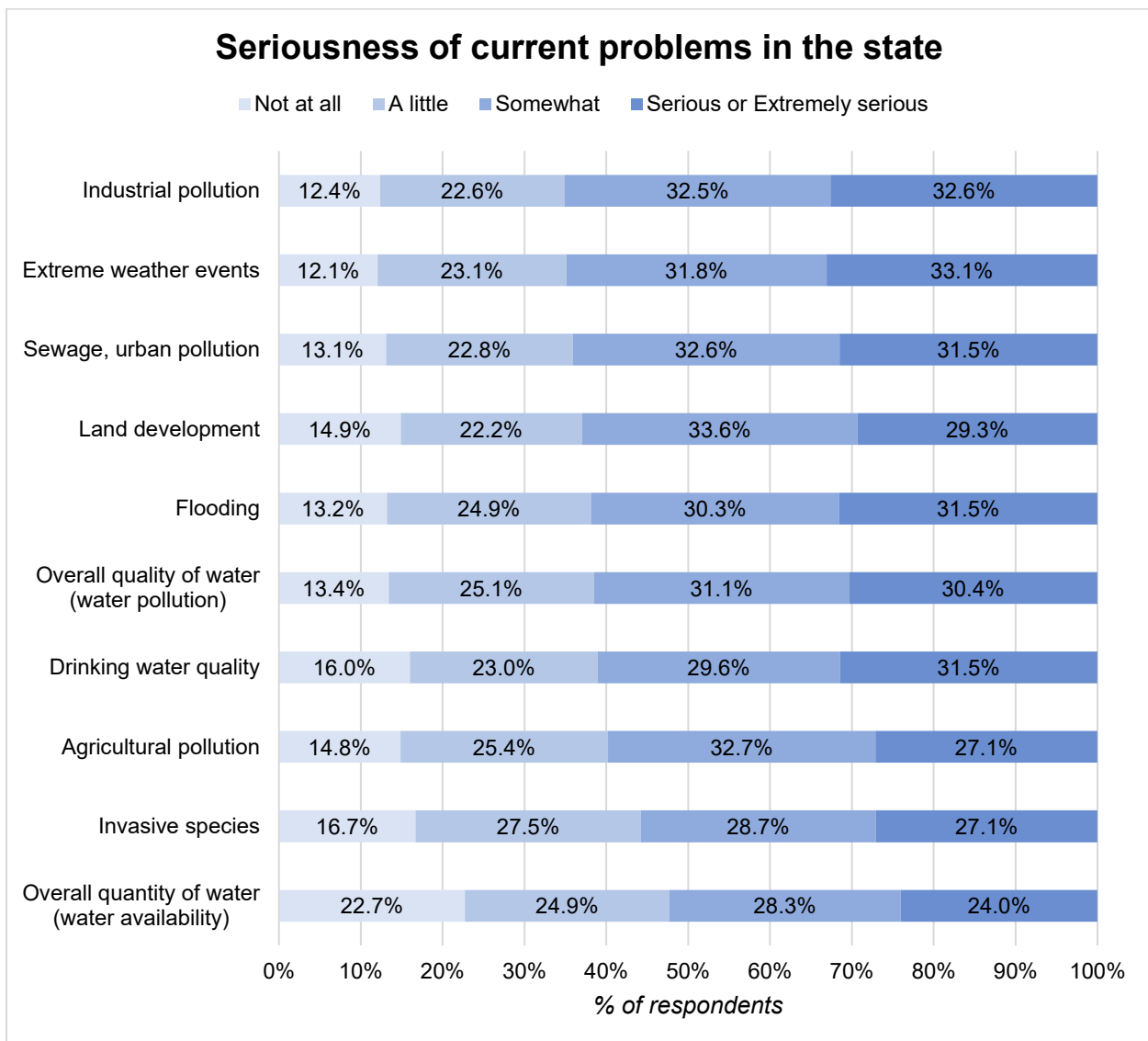


Figure 24. Rating of the perceived seriousness of environmental issues facing their state at the time of the survey.

[5-point scale, from 1='Not at all' to 5='Extremely serious,' "How serious of a problem do you think the following are for your state at this moment?"]

Awareness and concern about local changes

In this section, we explore residents' views about changes in their local environments, including awareness, level of concern, and expected impacts.

When asked about the effects of changes in the environment (Figure 25), over half of respondents agreed that their state (59.6% agree) and local community (53.1% agree) are being impacted.

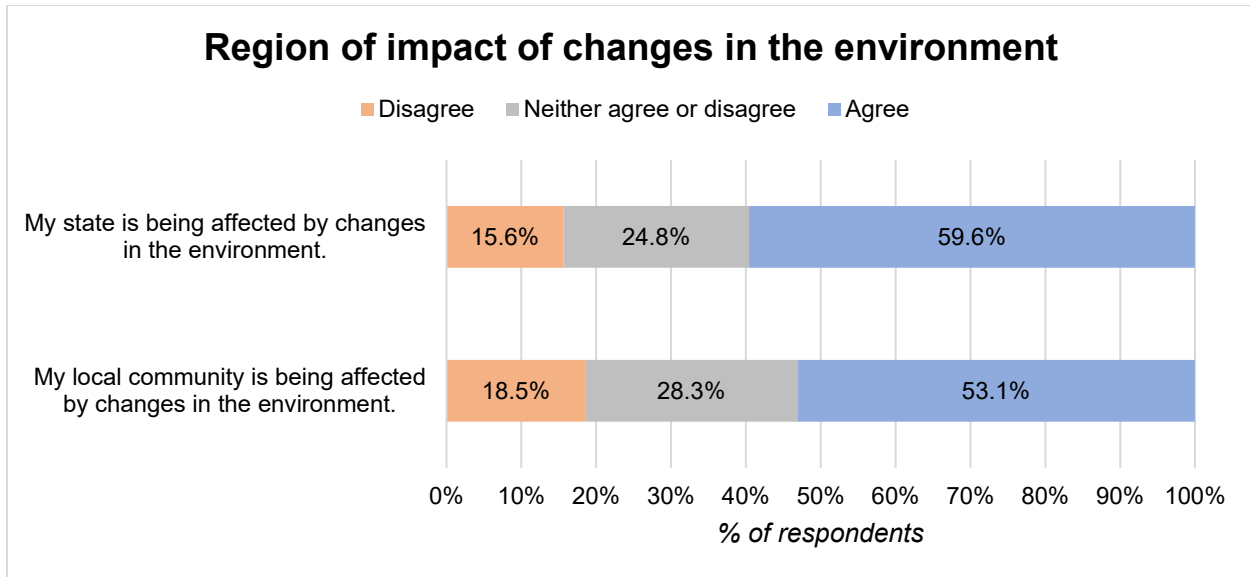


Figure 25. Awareness of regions affected by changes in the environment.

[5-point scale, from 1='Strongly disagree' to 5='Strongly agree,' "For this question, we want you to think about your local environment and community. How much do you agree or disagree with the following statements?"]

In terms of more specific changes in their local communities (Figure 26), around half of the respondents indicated they personally had noticed that their local environment has changed (51.9% agree) and that they had personally experienced adverse effects from the changes (49.3% agree). Respondents were less sure about changing temperatures. While 34.4% of respondents did not agree that seasonal temperatures had stayed the same, 42.2% thought that temperatures had not changed.

In addition to being aware of the changes, respondents registered concern about the impacts (Figure 27). Around half of the sample also indicated that they were concerned about how changes would impact people's health (53.3% agree) and worried about the quality of drinking water (49.3% agree). There was less consensus around whether respondents expected the overall quality of the local environment to stay the same over the next few decades. Respondents were almost evenly split across agreement, disagreement, and neither agreement nor disagreement.

To further explore whether there were differences in terms of concern over changes in the local environment impacting people's health, we looked at levels of concern across respondents' states (Figure 28). Arkansas was the only state where fewer than half of the respondents registered their concern (45.4% agree).

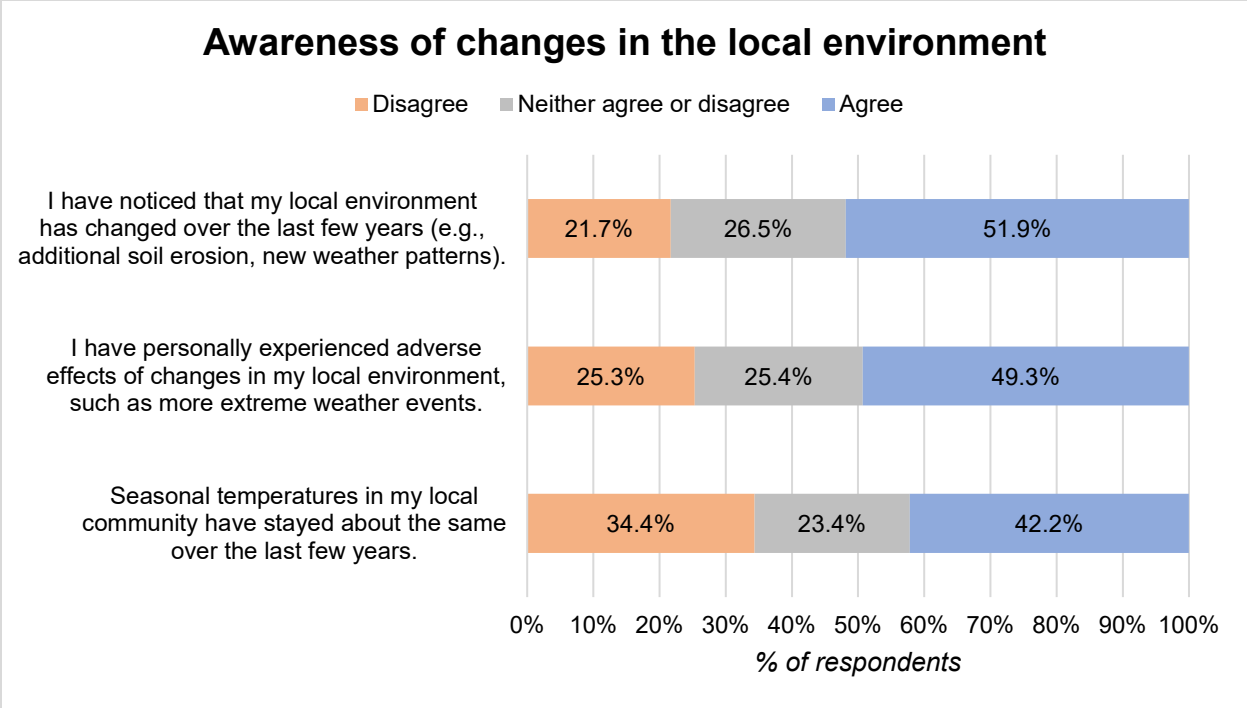


Figure 26. Awareness of changes in the environment within respondents’ local communities. [5-point scale, from 1=‘Strongly disagree’ to 5=‘Strongly agree,’ “For this question, we want you to think about your local environment and community. How much do you agree or disagree with the following statements?”]

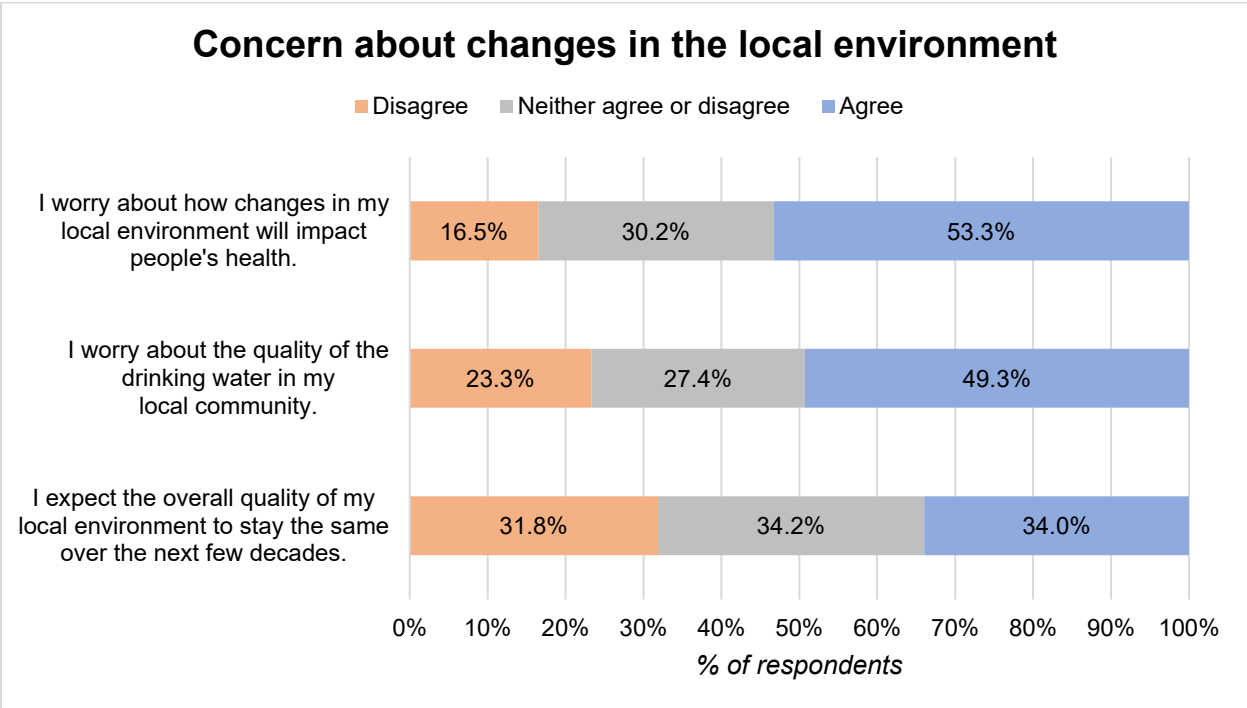


Figure 27. Concern about the expected impact of changes to the local environment. [5-point scale, from 1=‘Strongly disagree’ to 5=‘Strongly agree,’ “How much do you agree or disagree with the following statements about your local environment?”]

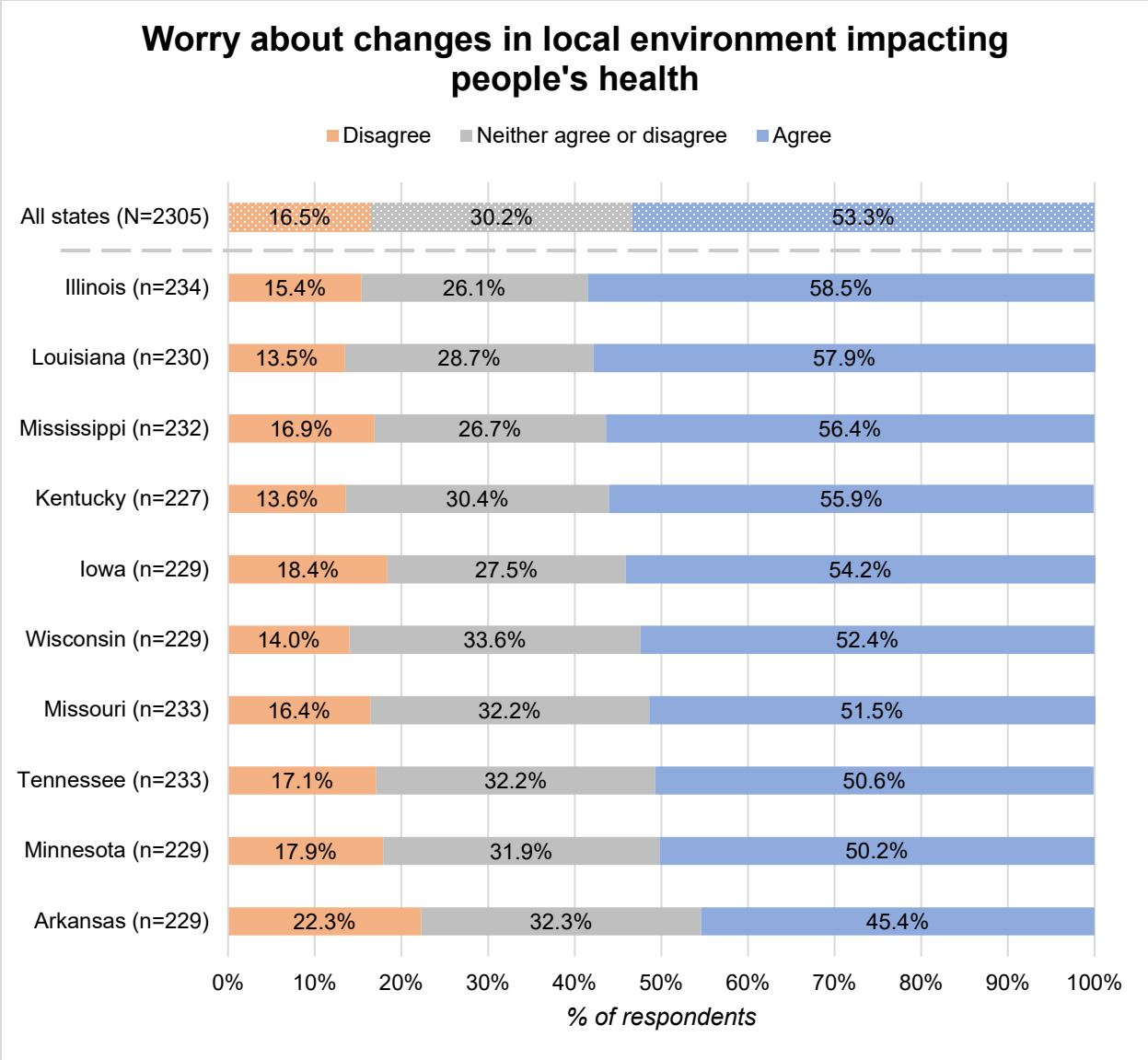


Figure 28. Concern about changes in local environment impacting people’s health by state. [5-point scale, from 1=‘Strongly disagree’ to 5=‘Strongly agree,’ “I worry about how changes in my local environment will impact people’s health.”]

Views and connections to Mississippi River

In this section, we explore residents' views on and familiarity with the Mississippi River. Specifically, we explore general awareness of the basin, feelings of personal connections to the Mississippi River, and basic knowledge of the basin and environmental issues impacting it.

To gauge the mainstream residents' baseline awareness of the geographical location of the Mississippi River Basin relative to each of them personally, we focused on two topic areas addressing the basin within their respective states and local communities.

For context, the Mississippi River Basin area is shown in the map below (Figure 29). In total, around 40% of the continental U.S. falls inside the basin, which includes at least parts of 32 states in the U.S. and two provinces in Canada.



Figure 29. Map of the Mississippi River Basin in the continental U.S.

Source: [U.S. National Park Service](#)

First, to address awareness at the state level, we asked respondents if their state contained parts of the Mississippi River Basin. All 10 states included in our survey are along the main stem of the river and fall within the basin, as shown in the above map. Responses from our sample, however, indicated there was uncertainty about whether their states were within the basin (Figure 30). Only around half of our respondents positively indicated that their state contained parts of the basin (54.4% “Yes”). Of the remaining respondents, most were unsure (37.8% “Not sure”) while fewer than 10% incorrectly thought their state was not part of the basin (7.8% “No”).

When comparing responses across the states, we found large variations in baseline awareness of whether their states fall within the basin. Respondents in Kentucky appeared to be the least familiar with their state's connection to the basin with the lowest percentage of correct responses (32.2% “Yes”) by a 16.5% margin and the highest number of both incorrect (15.9% “No”) and unsure (52.0% “Not sure”) responses. On the opposite end of the awareness spectrum, Minnesota respondents had the largest number of correct responses by a 7.7% margin (73.4% “Yes”), and the fewest incorrect responses (1.7% “No;” 24.9% “Not sure”).

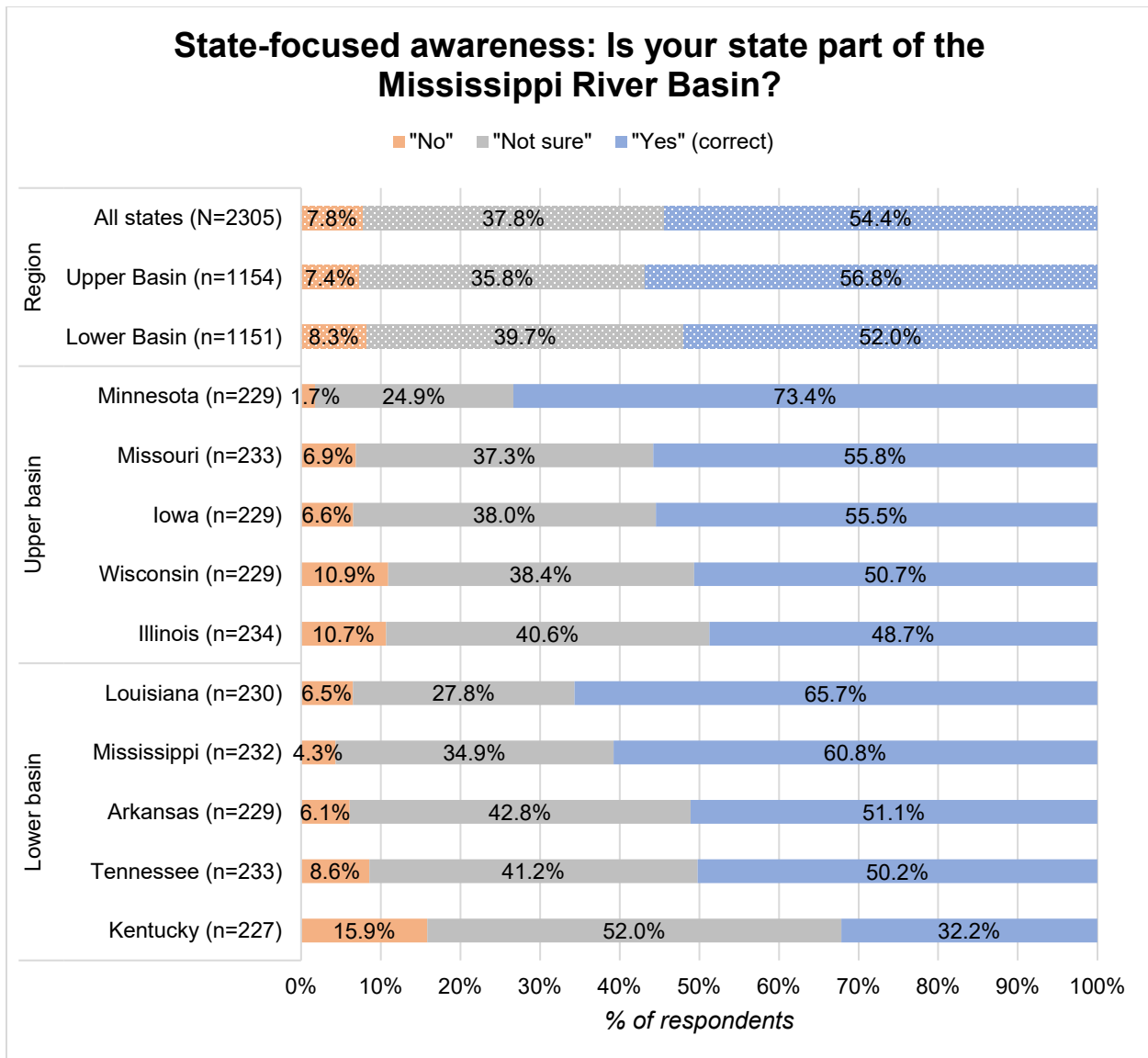


Figure 30. Awareness of whether each respondent’s state is within the Mississippi River Basin. Responses are grouped by state and regions of the basin. The correct answer is “Yes” as all states in the sample include parts of the basin.

[Response options were “Yes,” “No,” or “Not sure,” “Does your state (*respondent state*) contain parts of the Mississippi River Basin (watershed)?”]

Similar patterns continued across our second focus: determining respondents’ awareness of whether they *personally* reside in the Mississippi River Basin. In addition to asking respondents if they thought they personally lived in the basin, we also collected location data (county, zip code). We then compared the location data provided by the respondents to a map of the basin to determine whether each respondent actually lived inside or outside the basin (Figure 31).

Overall, very few of the respondents indicated that they thought they personally resided in the basin (14.3% “Yes;” Figure 32). Most respondents thought they *did not* personally live in within the basin (64.4% “No”) while only 21.3% were not sure. Some differences across states did appear. For example, more respondents in Louisiana (24.3% “Yes”), Minnesota (22.3% “Yes”),

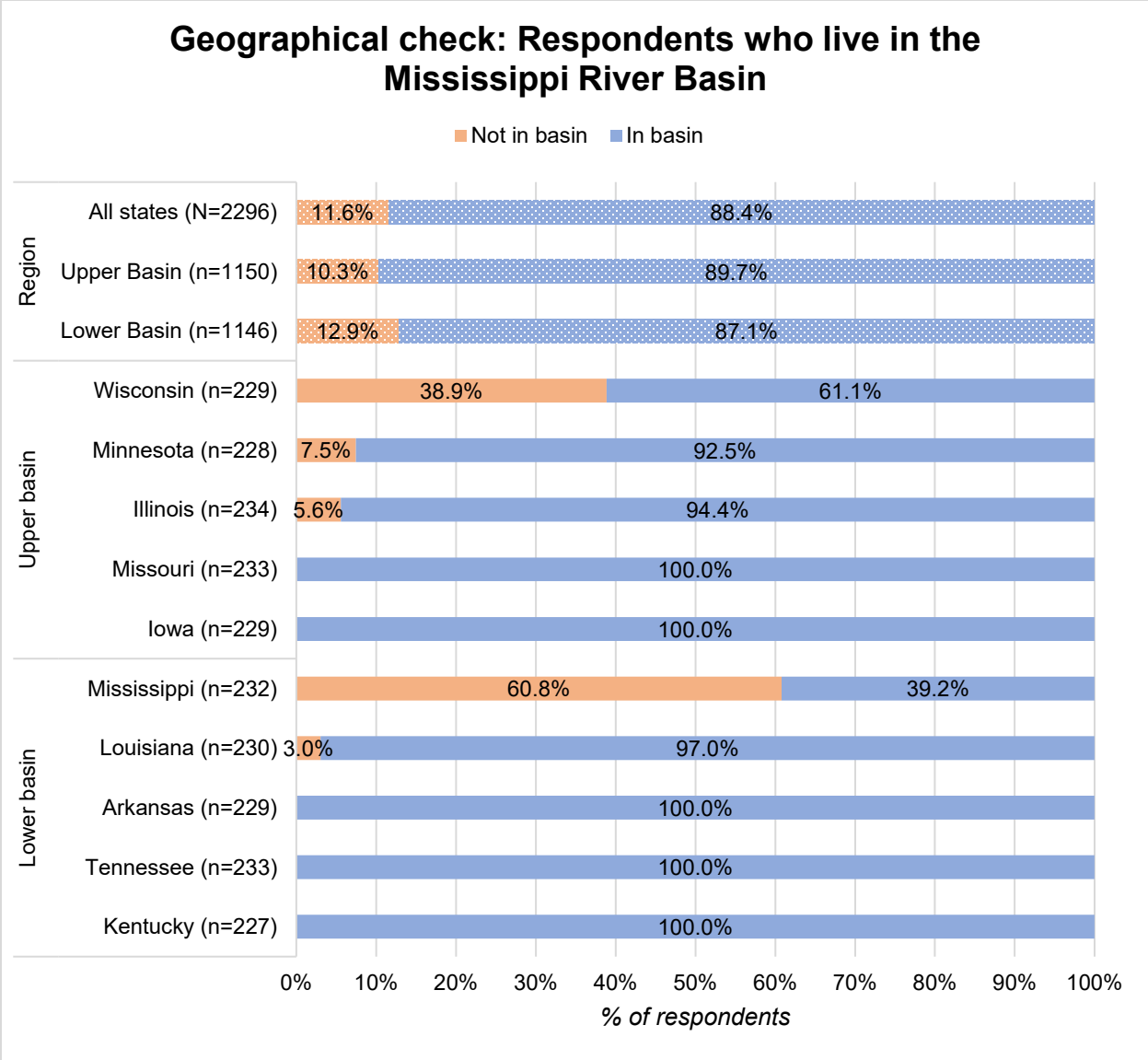


Figure 31. Distribution of respondents who live in the basin, based on location data. Responses are grouped by state and basin regions. We checked respondents’ location data (county, zip code) against a basin map to determine if they lived inside or outside the basin.

and Mississippi (19.4% “Yes”) believed they resided in the basin. In contrast to these responses, the location data analysis revealed that 88.4% of the overall sample lived within the boundaries of the basin (Figure 31).

To better understand this contrast, we compared these two sets of data (responses on whether they thought they were in the basin with the location-based data) to determine how aware respondents were of their local environment, specifically related to their level of connection to the basin. When respondents’ location data aligned with their beliefs (i.e., live in a county inside the basin and thought they live in the basin, “Yes”), they were labelled as “Correct responses.” Responses not in alignment (i.e., do not live in a county inside the basin but thought they did, “Yes”) or “Not sure” responses were labeled as “Incorrect.” The overall distribution of correct and incorrect responses is shown in Figure 33. To further explore these patterns, we also show the

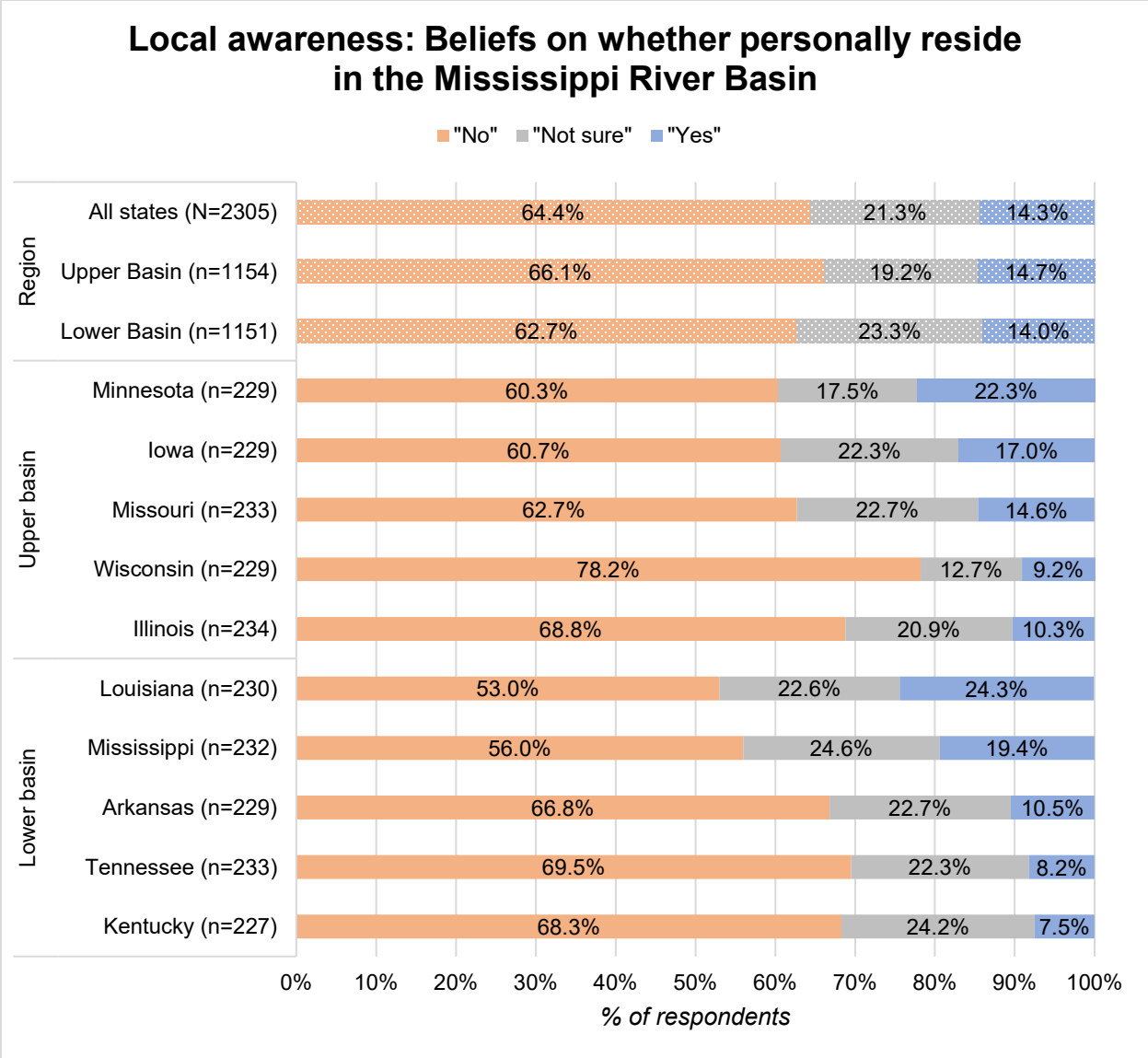


Figure 32. Belief responses to whether respondent think they live in the Mississippi River Basin. Responses are grouped by state and regions of the basin. [Response options were “Yes,” “No,” or “Not sure,” “Do you personally live in the Mississippi River Basin (watershed)?”]

detailed combination of location data and belief responses in a single graph in Figure 34, separated by states fully and partially within the basin. Notably, for the four fully in the basin states (Arkansas, Iowa, Kentucky, and Missouri) plus Tennessee (only a small southeastern state portion is outside the basin), we only include a comparison to the “In basin” geographic data as all respondents from these states did reside within the basin.

Responses from our sample once again indicated there was considerable confusion about the boundaries of the basin, especially relative to their lives. We found that only 21.0% of residents correctly responded to the question about whether they personally reside in the basin (Figure 33), considerably lower than those who correctly identified that their states fell within the basin (54.4% correct).

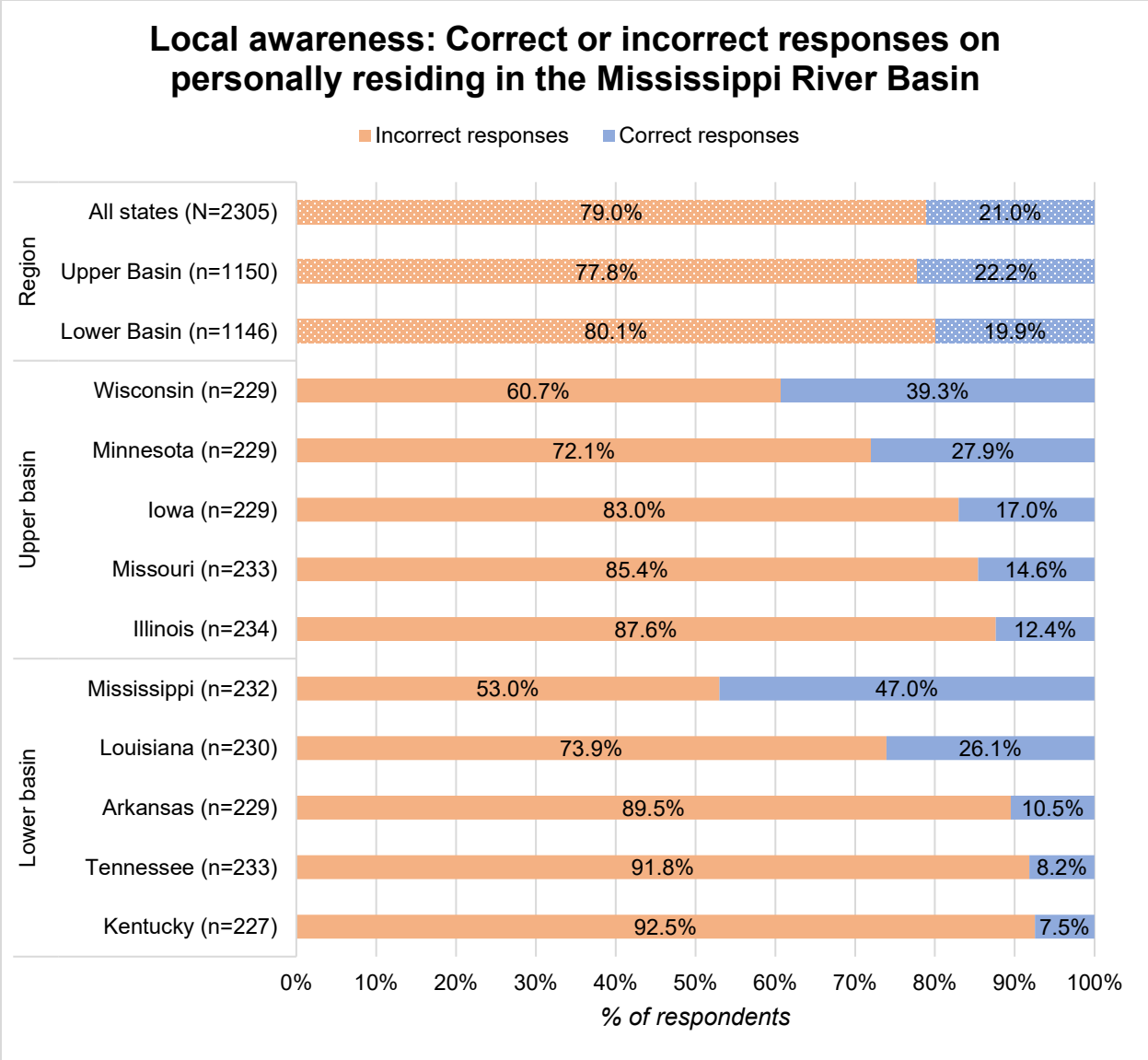


Figure 33. Overall awareness accuracy of whether respondent lives in Mississippi River Basin. Responses are grouped by state and regions of the basin. Correct or incorrect determinations were made by comparing location data (county, zip code) to responses to whether they thought they lived in the basin (beliefs). “Correct responses” are those whose beliefs agreed with their location data (i.e., live in a county inside the basin and responded “Yes” to the question of whether they live in the basin). “Not sure” responses were marked as incorrect. [Response options were “Yes,” “No,” or “Not sure,” “Do you personally live in the Mississippi River Basin (watershed)?”]

Looking at correct responses across states, respondents from Mississippi (47.0% correct) and Wisconsin (39.3% correct) appear to have the highest awareness of whether or not they reside in the basin, followed by Minnesota (27.9% correct) and Louisiana (26.1% correct).

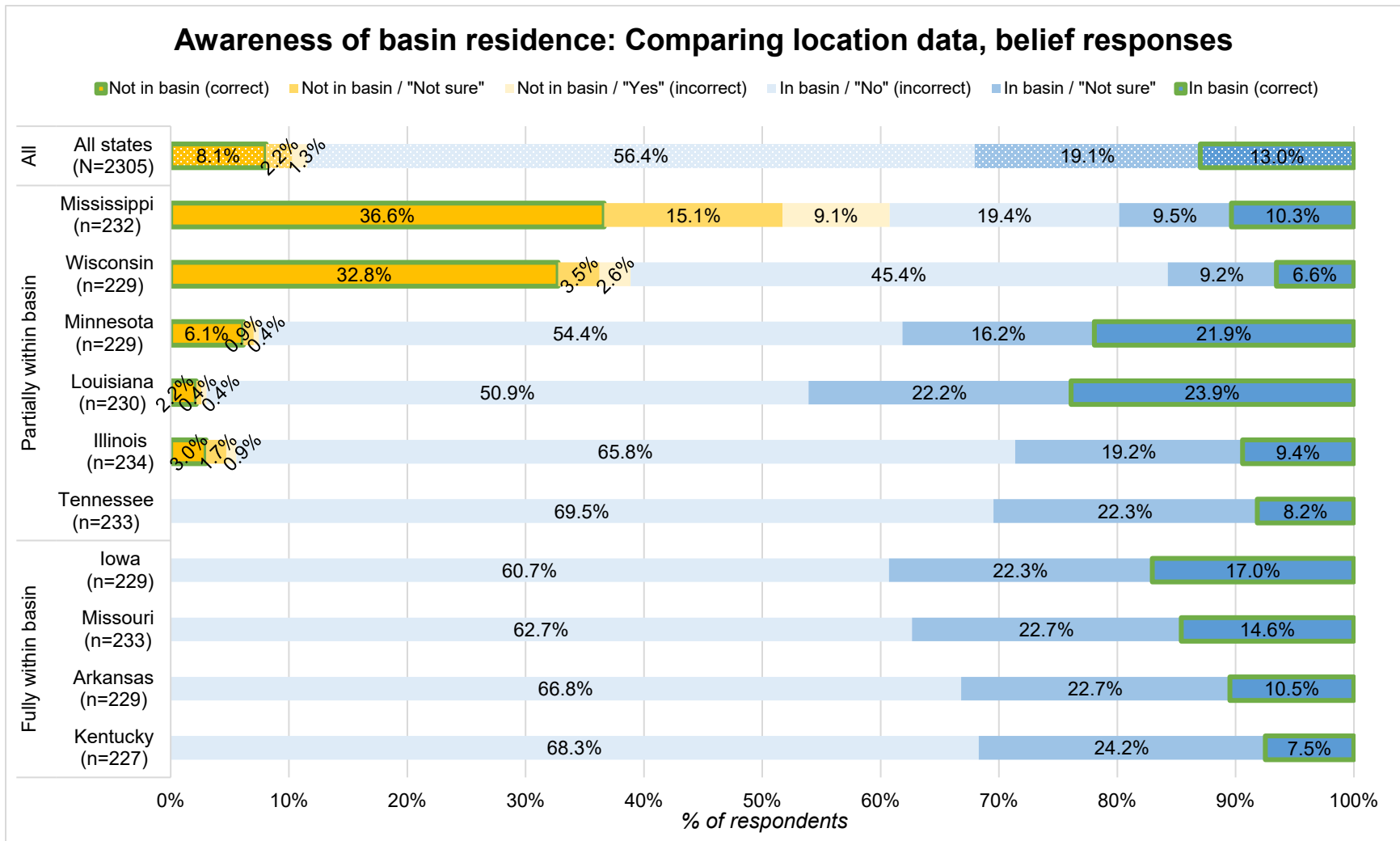


Figure 34. Awareness accuracy comparing location data to beliefs about whether respondents reside in the Mississippi River Basin. Responses are grouped by states fully or partially within the basin. Because all respondents from fully in basin states (and TN) live within the basin, the accuracy of belief responses are only presented in comparison to the affirmative geographical data (blue). Categories are based on a combination of 1) location data (county, zip code) assessment: respondents are “Not in basin” (yellow shades) or “In basin” (blue shades) and 2) respondents’ beliefs on whether they thought they lived in the basin: “Yes,” “No,” or “Not sure.” “Correct” or “incorrect” determinations are based on whether location data aligned with beliefs (i.e., live in a county inside the basin and thought they live in the basin, “Yes”). Correct responses are represented by darker hues.

Exploring responses across the location data, however, reveals a more complicated picture. Although Mississippi and Wisconsin appeared to have the highest portions of correct responses, these two states also had the highest percent of respondents who do not live in the basin based on the location data (60.8% for Mississippi, 38.9% for Wisconsin) by a large margin (all other states ranged from 0-7.5% of the sample outside the basin; Figure 31). Because the majority of respondents (across all states) indicated they thought they did not reside in the basin or were not sure, the larger portions of correct responses may simply be a function of the geographical distribution of the sample rather than actual awareness (i.e., most people guessed “No” or “Not sure” by default but had a greater chance of being correct in these two states). Indeed, the majority of correct responses from these states stemmed from those who correctly identified themselves as residing outside the basin (Not in basin correct: 36.6 % Mississippi; 32.8% Wisconsin; Figure 34). In contrast, just under a quarter of residents in both Minnesota (21.9% in basin correct) and Louisiana (23.9% in basin correct) correctly identified themselves as positively residing in the basin.

On the lower side of the spectrum, although the entire state of Kentucky and almost all of Tennessee fall within the basin, fewer than 10% of respondents from Kentucky (7.5% correct) and Tennessee (8.2% correct) were aware of whether they lived in the basin.

Generally, across the sample there are low levels of awareness of the local environment. Few respondents appeared to correctly identify if they personally resided within the Mississippi River Basin. Further illustrating this, a considerable portion of the respondents indicated they were not sure whether they resided in the basin (ranging from 12.7% to 26.4% “Not sure” by state).

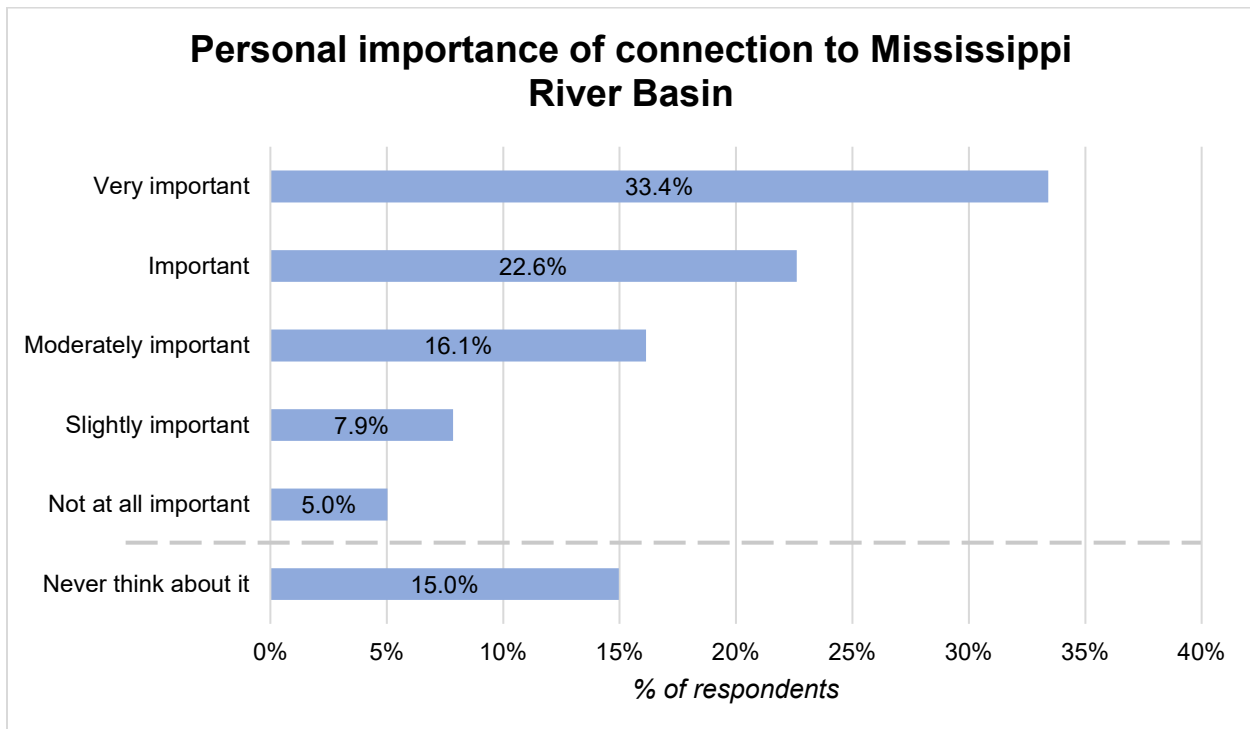


Figure 35. Ratings of personal importance that their state is in the Mississippi River Basin. [5-point scale, from 1=‘Not at all important’ to 5=‘Very important’ plus “Never think about it,” after seeing a map of the basin, “As you can see, {respondent state} is located in the Basin. How important is it to you that your state is a part of the Mississippi River Basin?”]

Next, shifting away from geographical awareness and knowledge, we wanted to know more about what residents thought about the basin more broadly, if they thought about it at all (Figure 35). When asked how important it was to them that their state is a part of the Mississippi River Basin, around a third of the respondents indicated it was very important (33.4%) with another almost quarter indicating it was important (22.6%). Few respondents felt it was not at all important (5.0%). Another 15.0% of respondents indicated they never think about it.

In addition to asking respondents to rate how important being a part of the basin is to them on the above scale, we immediately followed up with an open-ended question asking respondents list a few thoughts or ideas about what, if anything, it means to be part of the Mississippi River Basin. In line with the split findings from the importance question, responses highlighted both apathy or loose personal connections and some deep concerns and awareness of the Mississippi River and the basin. Select responses that illustrate these general thoughts are shown in Table 2.

Table 2. Select responses illustrating apathy, deep connections to Mississippi River Basin.

Open-ended: “Can you share your thoughts about what it means to be part of the Mississippi River Basin?”	
<i>Select responses highlighting...</i> (bolding added for emphasis)	
<i>Low importance or “Never think about it” (loose connections, apathy)</i>	<i>High importance (deep connection, awareness)</i>
<ul style="list-style-type: none"> • “Dont have any feelings one way or the other.” • “im not familiar with the river basin concept.” • “Im not sure being labeled as such [part of the basin] has any real impact on myself or my community.” 	<ul style="list-style-type: none"> • “i think it is important to care for the water quality in the mississippi river basin, because my family becomes sick after drinking the tap water.” • “My family has farmed that land for generations, so we—like ALL farmers—are already experts at land management and environmental specialists.” • “We contribute our lakes and streams to the basin, meaning all of the water is connected in some way [...] Its not one states problem its all of ours.”

Finally, to complement general awareness and personal importance, we also wanted to gauge how much residents knew about the Mississippi River. Respondents were given a series of five true-or-false statements. On average, respondents knew the correct answers to two of the five questions (M = 2.0, SD = 1.3). In terms of distribution, just over a third of the sample either did not know the correct answer to any questions (18.3%) or knew only one of the answers (17.3%). Very few respondents were able to correctly answer all or most (four or five) of the questions (11.7%). The remaining around half of respondents (52.8%) scored somewhere in between (2 correct: 27.4%; 3 correct 25.4%).

The Mississippi River focused knowledge questions covered different subtopics related to its geography and ecology (Figure 36). Most respondents could correctly identify major tributaries of the Mississippi River (61.4% correct) and knew the flooding is important to replenish the soil (55.9% correct). Respondents were less sure of the states included in the basin (40.3% correct; 42.1% do not know). Relatedly, the most challenging question addressed the geographical size of the Basin, with many residents incorrectly underestimating the percentage of the continental United States covered by the basin (17.9% correct; 44.2% incorrect). Respondents were also challenged by the question addressing hypoxia in the Gulf of Mexico. In response to a false statement linking lead to the dead zone, a plurality of respondents (44.2%) indicated they didn't know if lead was the cause of the dead zone with under a quarter correctly identifying the statement as false (21.7% correct).

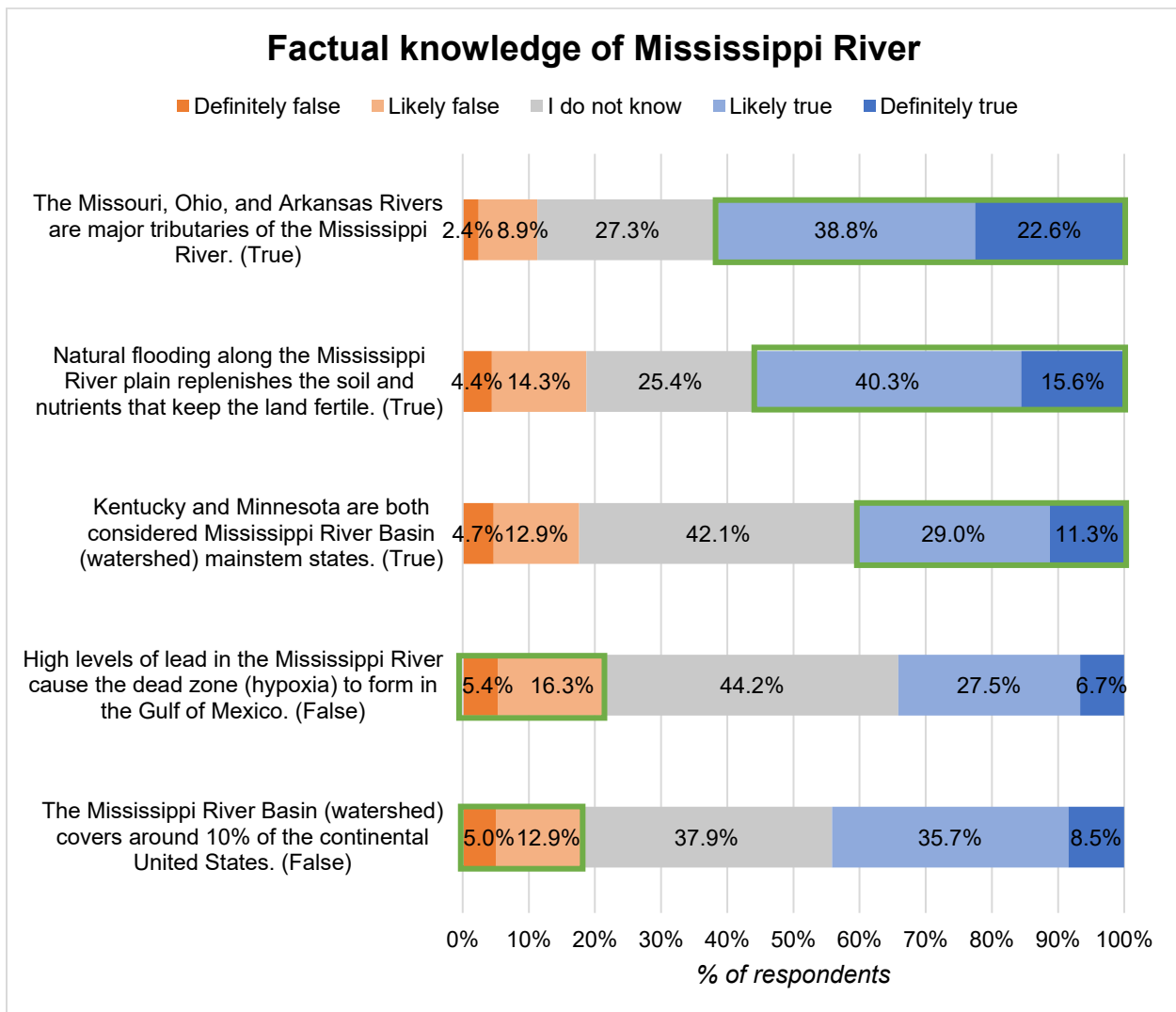


Figure 36. Responses to true-or-false factual questions about the Mississippi River. Correct answers are boxed in green and listed after each statement. Statements are in descending order of correct responses (excluding don't know). [4-point scale, from 1='Definitely false' to 4='Definitely true' with a "Don't know" option, "Below are some statements about the Mississippi River. It is difficult to know the answers to all of these, but could you tell us for each of the following statements if you think it is true or false?"]

Scope of responsibility and solutions for environmental issues

This section addresses who residents see as responsible for environmental issues impacting their region.

When given a list of various stakeholders and asked who they thought was responsible for environmental issues impacting their region, respondents held others responsible more so than themselves (Figure 37). Only 23.9% of respondents felt they were either moderately or greatly responsible for environmental issues impacting their region compared to the 50.5% who felt society as a whole was moderately or greatly responsible. Further, 18.5% felt they were not at all personally responsible.

In keeping with society as a whole, many respondents also placed a moderate amount or a great deal of responsibility on people in their state (40.4% moderate/great).

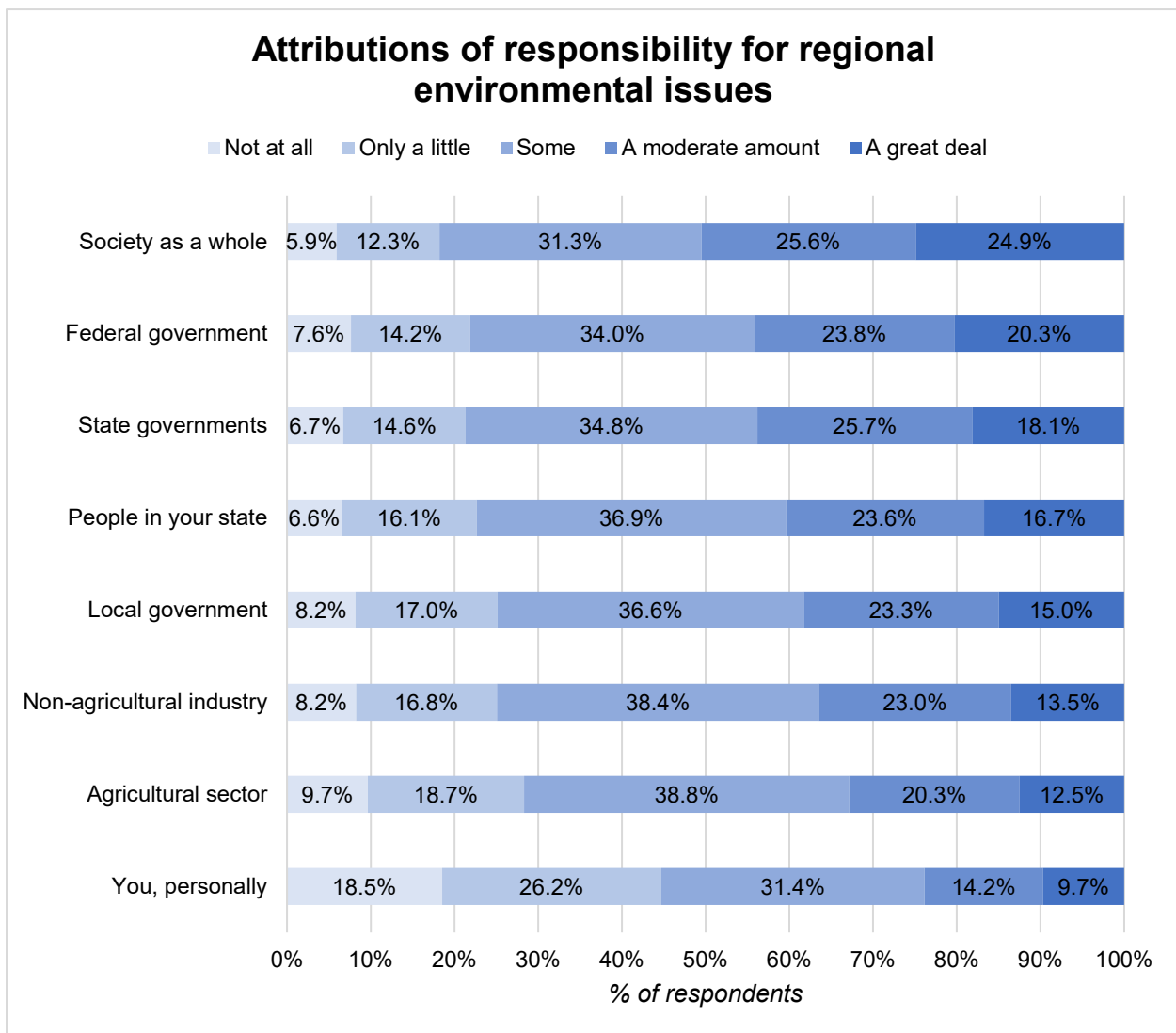


Figure 37. Respondents' attributions of responsibility placed on various stakeholders for environmental issues impacting the region.

[5-point scale, from 1='Not at all' to 5='A great deal,' "To what extent do you think each of the following is responsible for environmental issues impacting your region?"]

Other actors that respondents attributed a moderate or great deal of responsibility to were the federal (44.1% moderate/great) and state (43.8% moderate/great) governments. Conversely, fewer respondents indicated that they felt industries, both agricultural (32.8% moderate/great) and non-agricultural (36.5%), were responsible.

We also asked residents about their views on responsibility for water issues impacting the Mississippi River (Figure 38). Overall, respondents did not appear to place sole responsibility on upstream states for issues impacting the Mississippi River. Only a third (32.1%) agreed with the statement that upstream states were primarily responsible. Just under half of the sample (46.7%) neither agreed nor disagreed, indicating they may have more nuanced views on cross-system responsibility.

Similarly, most respondents appeared to believe that water issues impacting the Mississippi River will require larger-scale efforts. Around two-thirds of respondents (66.8%) indicated that addressing these issues will require coordinated efforts across the region.

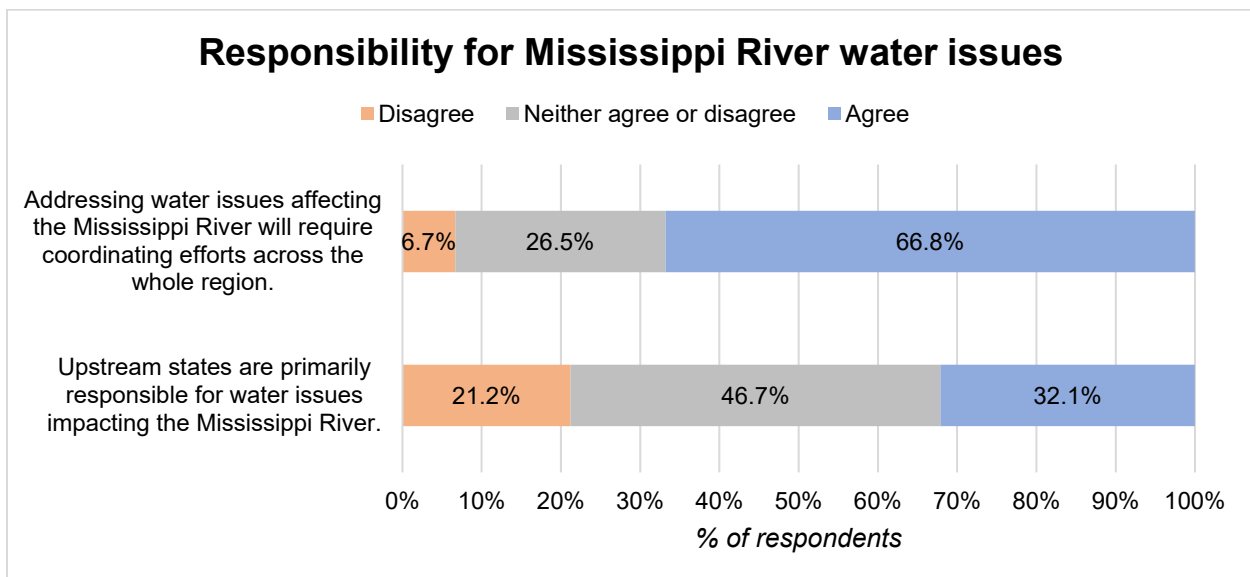


Figure 38. Views of regional responsibility for water issues impacting the Mississippi River. [5-point scale, from 1='Strongly disagree' to 5='Strongly agree,' "How much do you agree or disagree with the following statements about actions to address water issues?"]

Further investigating what residents viewed as the appropriate scope for addressing environmental issues, respondents were asked two questions about whether environmental issues required individual or systemic actions (Figure 39). Generally, respondents seemed to acknowledge a role for both individual actions and systemic solutions. Over half of the sample agreed that systemic (whole system) solutions would be required to address regional environmental issues (58.4%) with fewer than 10% disagreeing with this statement (8.4%). There was a little less support, but still a majority, regarding the efficacy of individual actions in mitigating environmental degradation (52.5%), with just over 10% of respondents disagreeing (12.1%).

Overall, respondents appear to place less responsibility, both in terms of blame and solutions, on individual actions compared to society at large.

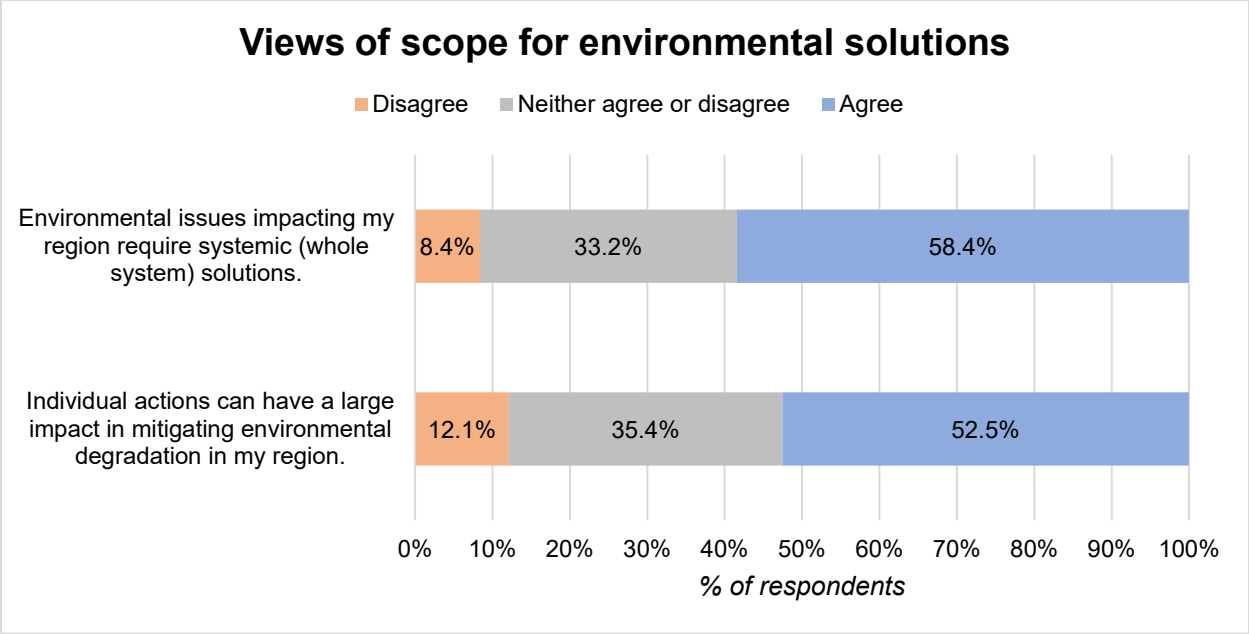


Figure 39. Views of the scope of solutions necessary to address environmental issues, individual or systemic. [5-point scale, from 1='Strongly disagree' to 5='Strongly agree,' "How much do you agree or disagree with the following statements about environmental actions in general?"]

Environmental actions, past and future

This section delves further into residents' individual environmental actions by looking at both their past actions and their willingness to act in the future.

Starting with past actions, 91.2% of respondents indicated they have participated in at least one of the listed activities (Figure 40). With around two-thirds of respondents indicating they had done them at least occasionally, the most popular actions were change their lifestyles or behaviors (66.2% at least occasionally) and talk to other people (63.8% at least occasionally).

Fewer respondents indicated they had volunteered time (36.1% at least occasionally), given monetary donations (36.1% at least occasionally), or taken political actions (31.7% at least occasionally), with almost half of respondents indicating they have never taken these actions for each option.

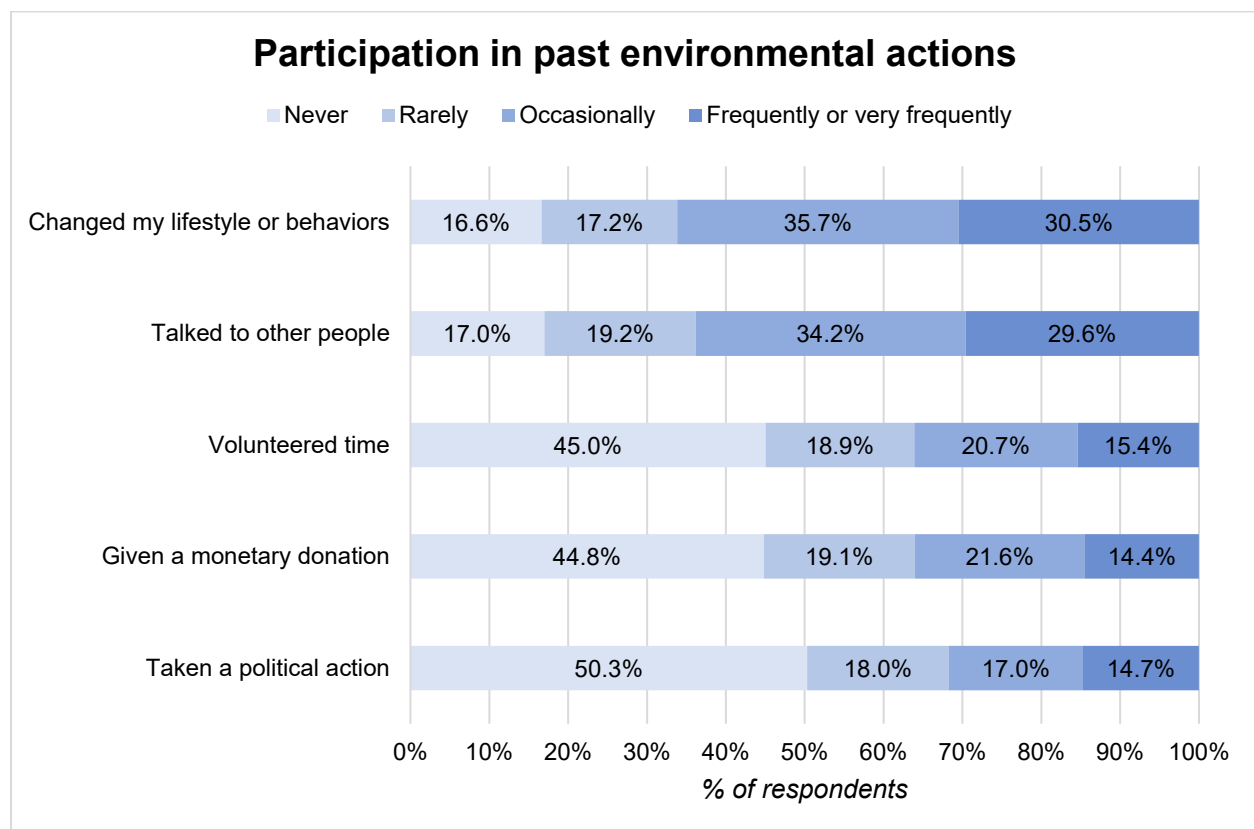


Figure 40. Frequency of past participation in various environmental actions.

[5-point scale, from 1='Never' to 5='Very frequently,' "Have you ever done any of the following activities to address environmental issues in the past?"]

To complement their list of past actions, we also asked respondents what actions they would be willing to take in the future (Figure 41). In line with what respondents indicated they have already done, most respondents were willing to change their personal behaviors (70.6% at least somewhat). They were also willing to seek more information (65.7% at least somewhat).

Respondents also appeared willing to engage in political actions. Most respondents indicated they were willing to support environmental initiatives at all levels, local (64.9% at least

somewhat), state (64.6% at least somewhat), and federal (60.0% at least somewhat). They also were willing to vote for environmental candidates (60.0% at least somewhat). The political action requiring more effort, contacting state legislators, ranked at the bottom of the political action willingness list (46.0% at least somewhat; 32.6% not at all willing).

Respondents were overall a little less willing, however, to engage in actions that required monetary commitments, such as paying more money for sustainable grown foods (48.6% at least somewhat; 28.5% not at all willing). Paying higher taxes ranked at the bottom of the list, although 40.5% of the sample was still at least somewhat willing to do this (38.5% not at all willing).

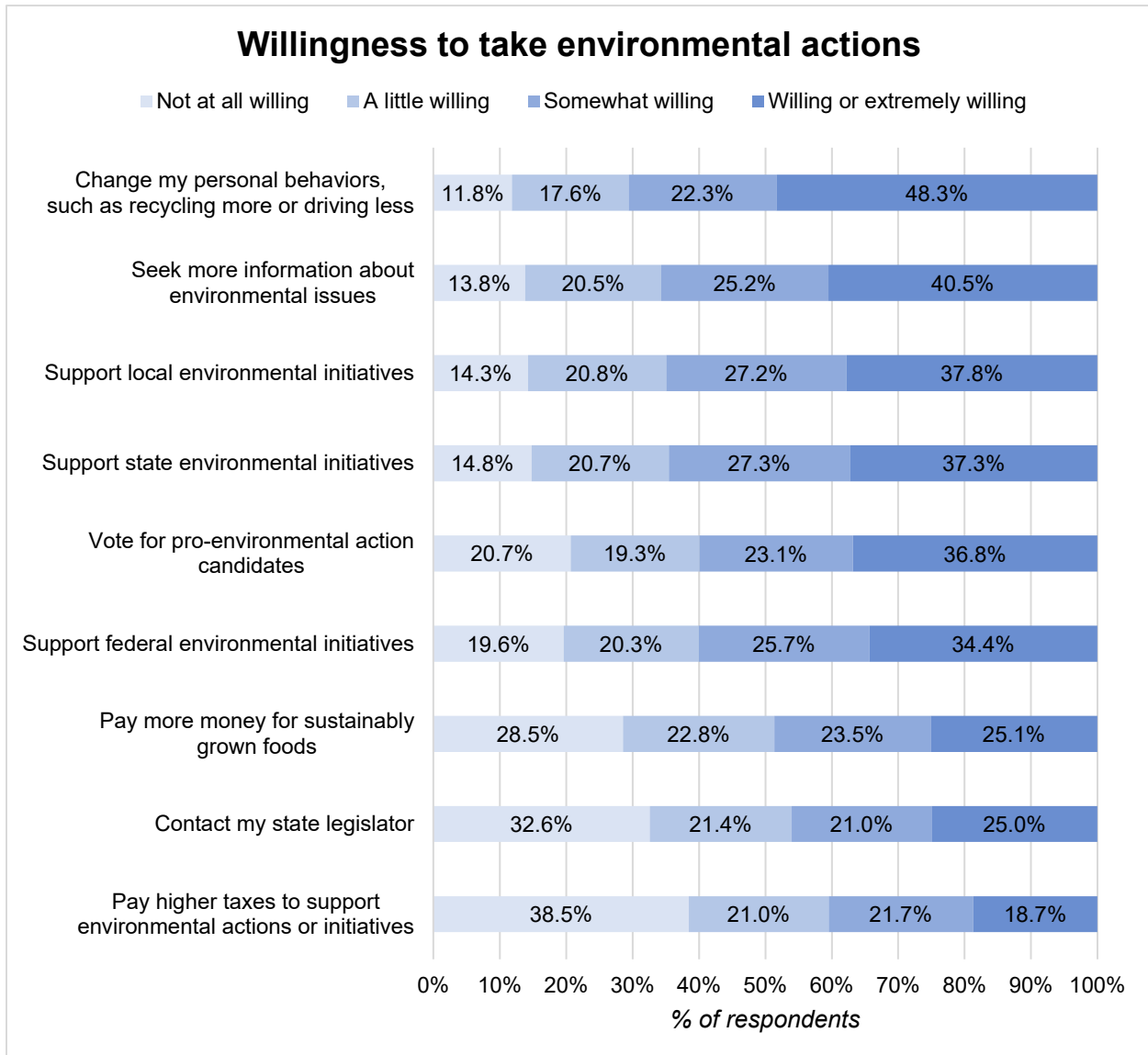


Figure 41. Willingness to engage in specific actions in the future to address environmental issues in their region. [5-point scale, from 1=‘Not at all willing’ to 5=‘Extremely willing,’ “How willing are you to engage in the following activities in the future to address environmental issues in your region?”]

Support for Mississippi River policy solutions

In this section, we address residents' support for specific policy solutions to address water issues impacting the Mississippi River.

Broadly, there was support for policies to safeguard the Mississippi River and address water issues (Figure 42). Almost three-fourths of the sample indicated they supported policies to protect drinking water quality in their states (73.6% agree). There was less support, but still a majority, for federal policies to address water issues in the Mississippi River (56.8% agree). Few respondents (<10%) indicated they did not support either of these policy solutions.

Finally, we asked respondents if they would approve of the formation of a compact or taskforce similar to the 2008 interstate compact formed to help address the shared use, management, and protection of the water from the Great Lakes Basin (Figure 43). Over half of the respondents (52.7%) indicated they would support the formation of a similar compact to address the management and use of the Mississippi River. Only 6.8% of respondents disapproved of a compact while 40.5% were unsure or indifferent.

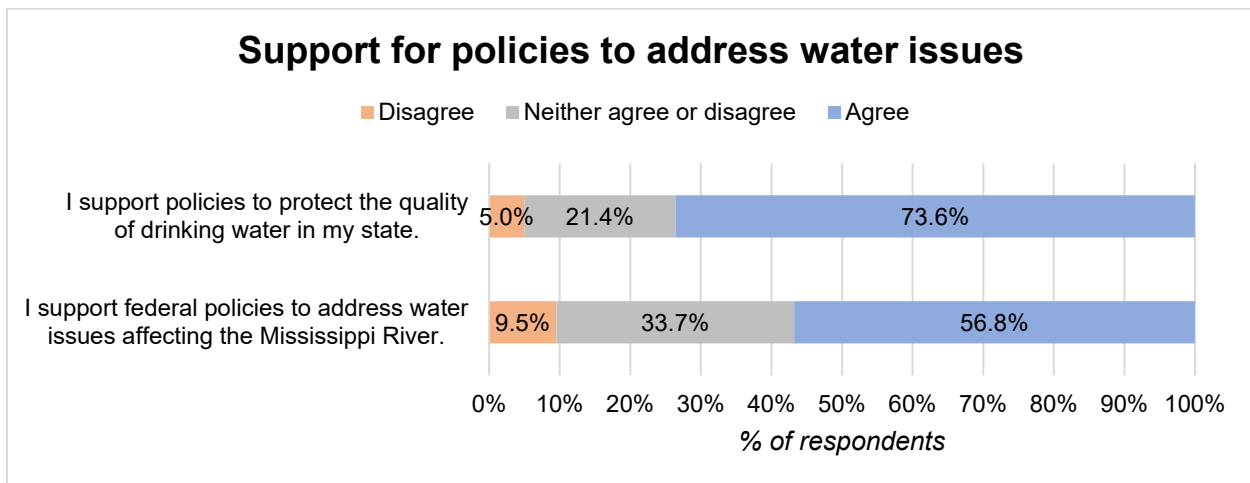


Figure 42. Support for policies to address water issues impacting the Mississippi River. [5-point scale, from 1='Strongly disagree' to 5='Strongly agree,' "How much do you agree or disagree with the following statements about actions to address water issues?"]

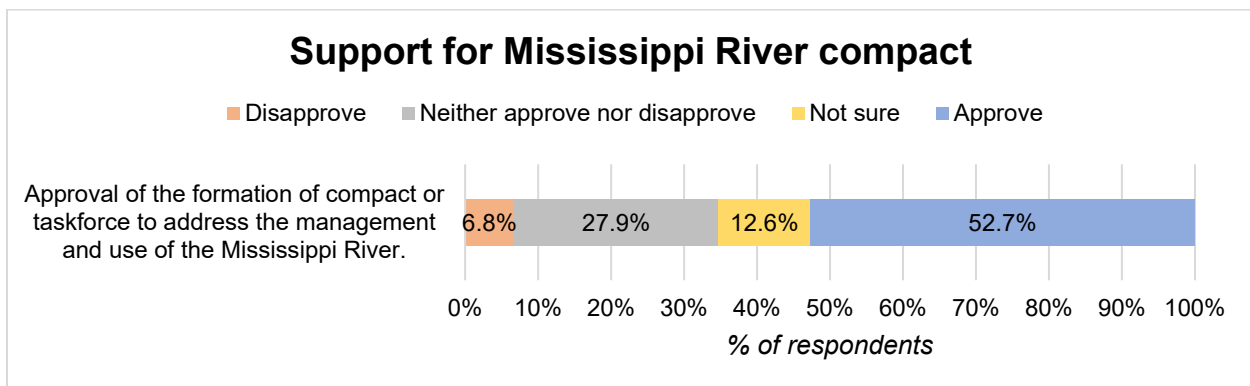


Figure 43. Approval of the formation of a compact to manage the Mississippi River. [5-point scale, from 1='Strongly disapprove' to 5='Strongly approve' with "Not sure," "Would you approve of the formation of a similar compact or taskforce [like the Great Lakes compact] to address the management and use of the Mississippi River?"]

Methods

In the spring and summer of 2022, our team developed and conducted several research projects related to the Agriculture and Water Reporting Desk, including a survey of members of the public who reside within the Mississippi River Basin. In conducting the survey, our goal was to gain insights into understanding the environmental attitudes, behaviors, and information uses of members of the public living in the 10 stem states along the Mississippi River. Data from this survey can also provide insights for those seeking to cover environmental and agricultural issues impacting the Basin.

The 20-minute survey was conducted in August 2022 using an online panel. The overall sample consisted of representative surveys from each of the 10 stem states of the Mississippi River (n=227-234), for a final sample size of N=2,305 (Table 3). For representativeness, quotas for the respondents were established based on the latest available U.S. Census data. Each state is representative of its population in terms of age, gender, and education. The sample was slightly weighted toward rural residency.

Table 3. Sample size by state.

State	Sample size (n)
Arkansas	229
Illinois	234
Iowa	229
Kentucky	227
Louisiana	230
Minnesota	229
Mississippi	232
Missouri	233
Tennessee	233
Wisconsin	229
<i>Total Sample (N)</i>	<i>2305</i>

**Public research in the Mississippi River Basin:
Environmental perspective and identity**

Appendices

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Appendix A: Comparison with Yale Climate Opinions public survey

As a comparison check for our data, we looked at another large-scale survey of climate change opinions, the [Yale Program on Climate Change Communication](#) project. Specifically, we compared the data gathered from our 2022 survey (“Basin”) with data collected through the 2021 Yale Climate Opinions survey (“Yale”). Of note, the two surveys differed in their population of interest. The Yale Climate Opinion survey collected data from respondents from all U.S. states, while our project only included respondents from the 10 mainstem states of the Mississippi River. In the following exploration of public opinion information from these two sources, we explore data at both the individual state and the entire sample levels.

It is also worth noting that although questions from both surveys addressed overlapping topics and concepts, there are often sufficient differences in how the questions were structured or phrased such that it precludes direct comparisons. Any structural differences between the questions are addressed in the relevant sections (and included in figure descriptions).

Turning to the data itself, the first shared topic addressed in the surveys is baseline belief in the existence of climate change or global warming (Figure A1). Although both surveys asked whether respondents thought “it” was happening, the term used by the sources to reference the global phenomenon differed. The Yale Climate Opinions survey opted for “global warming” while we employed the term “climate change” in our survey of Mississippi River Basin residents. Although the two terms are often used interchangeably (at least colloquially), [past climate opinion research](#), including [from the Yale Program](#) itself, has demonstrated differences in the public’s level of acceptance, basic understanding, and other associations related to the use of the term “climate change” or “global warming.” Because we were interested in the residents’ experiences with and views of a range of potential changes impacting local ecosystems, weather patterns, and climates attributable to the phenomenon rather than solely long-term warming, we decided to use the more encompassing “climate change” throughout our survey.

Across both surveys and all states, a large majority of respondents indicated they believed that global warming or climate change is happening (Yale¹: 71.8% U.S.; Basin: 69.2% basin residents). Comparing the two data source for the individual states, responses were similar across all categories as similar percentages of respondents accepted or denied the existence of global warming or climate change. Kentucky, Iowa, and Minnesota had the largest discrepancies in acceptance (5.7-7.2% difference) with a slightly higher percentage of respondents from these states in the Basin sample accepting the existence of climate change in these states. Missouri, Kentucky, and Iowa had the largest differences in terms of denial (5.3-8.2% difference), with a lower percentage of respondents from these states in the Basin sample not accepting climate change. In terms of overall patterns, in over half of the states, the Basin sample had slightly higher rates of acceptance and lower rates of denial. These differences in the responses, however, are likely within the margin of error and attributable to minor differences in sampling or related to the differences in the question wording.

Next, both surveys asked respondents how they felt about the science behind climate change (global warming), including whether there is a scientific consensus and where most scientists stand on acceptance of climate change. Once again, the surveys asked about these concepts in

¹The overall average for the Yale Climate Opinions survey data is reflective of their entire U.S. sample. As the sample size per state was not listed, we were not able to accurately calculate an average for only the mainstem basin states that would be more comparable to our overall sample average.

Yale and Basin samples: Belief in the existence of climate change (global warming)

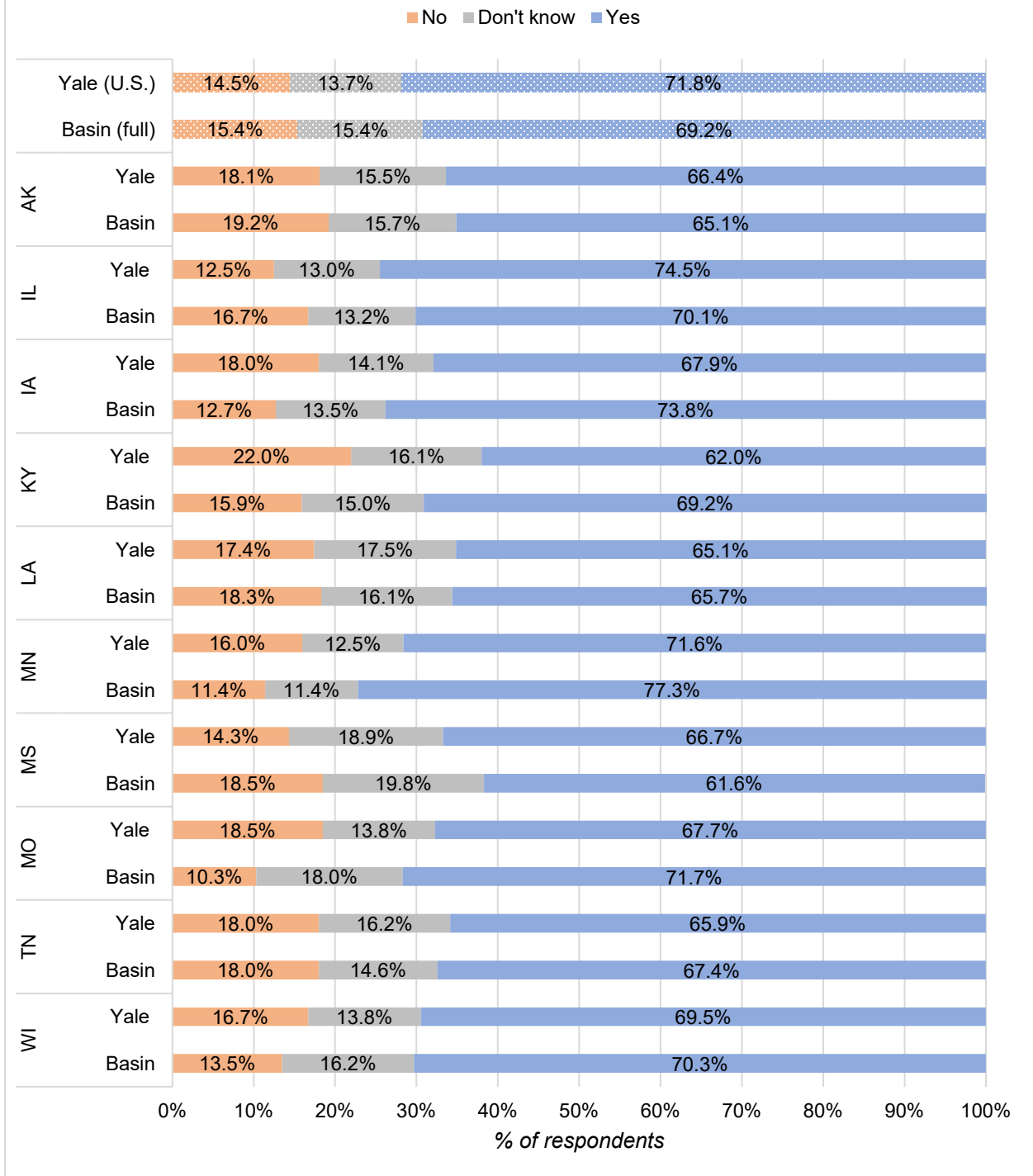


Figure A1. Yale, Basin comparison of belief in whether climate change (global warming) exists. Note: Data sources used different terms to describe the phenomena: 1) Yale Climate Opinions, “global warming” and 2) Mississippi River Basin, “climate change” [Response options were “Yes,” “No,” or “I don’t know,” “Do you think that {global warming / climate change} is happening?”]

two different ways (see Yale Figure A2a and Basin Figure A2b), including using different terms in reference to the global phenomenon (Yale “global warming” vs. Basin “climate change”). Additionally, the Yale survey used a single choice question assessing what statement most closely represented respondents’ views while the Basin survey asked two separate questions assessing agreement with each item.

Generally, a higher proportion of respondents from both surveys believed that scientists thought climate change is happening than believed there was a lot of disagreement among scientists as to its existence. Due to the structure of how the questions were asked, the Basin sample had higher levels of agreement with both statements about the scientific consensus: scientists think climate change is happening AND there is disagreement among scientists. Both surveys also showed a considerable portion (around 20-25% or more) of “don’t know” or unsure responses. This may point to a level of confusion or uncertainty about the scientific support for climate change, especially regarding disagreement among the scientific community, that is particularly apparent within the Basin sample.

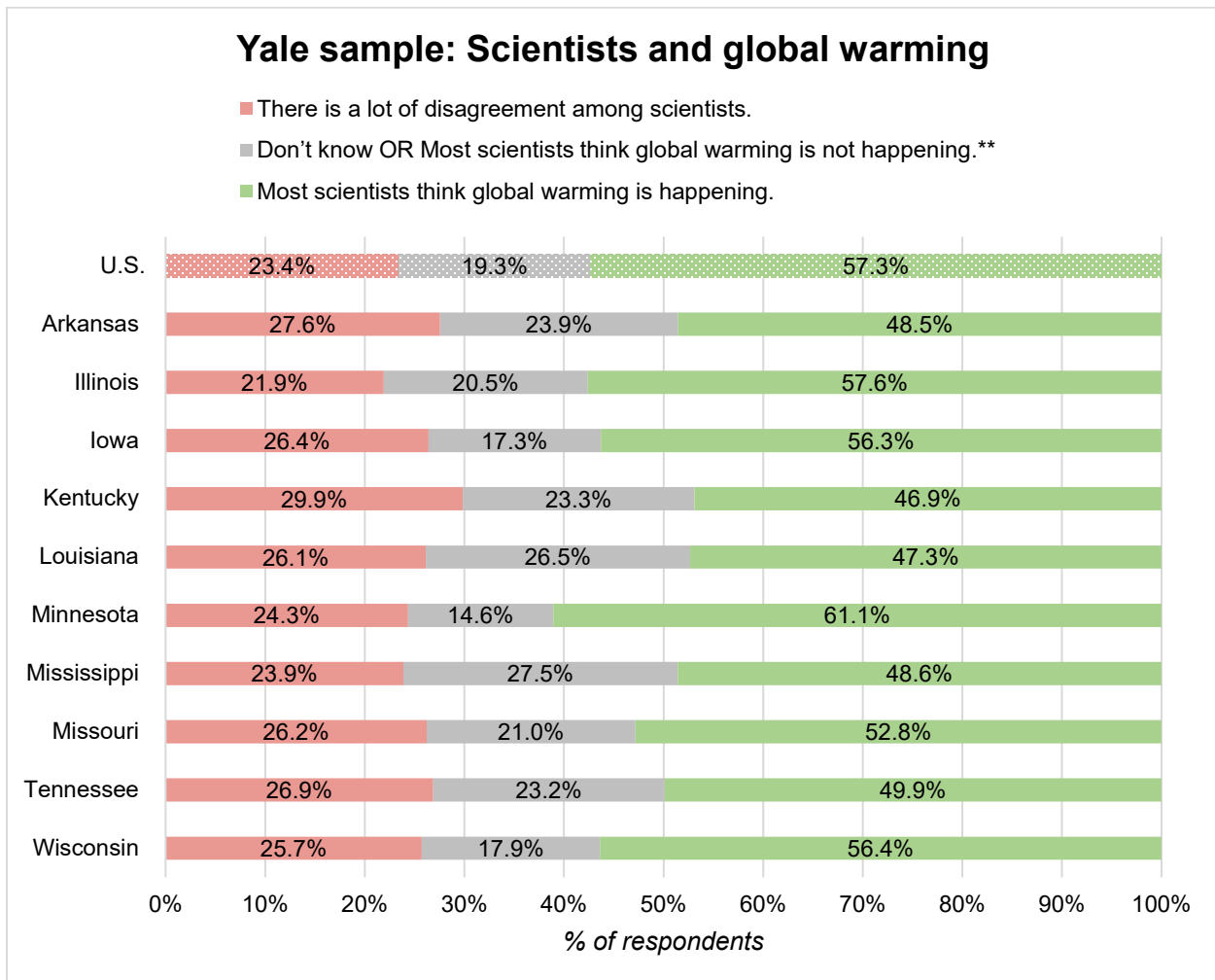


Figure A2a. Yale sample views about scientists, the scientific consensus for climate change. [Single choice; “Which comes closest to your own view?” A) ‘Most scientists think global warming is happening;’ B) ‘There is a lot of disagreement among scientists about whether or not global warming is happening;’ C) ‘Most scientists think global warming is not happening;’ or D) ‘Don’t know enough to say.’ **Responses C and D were grouped in the available data.]

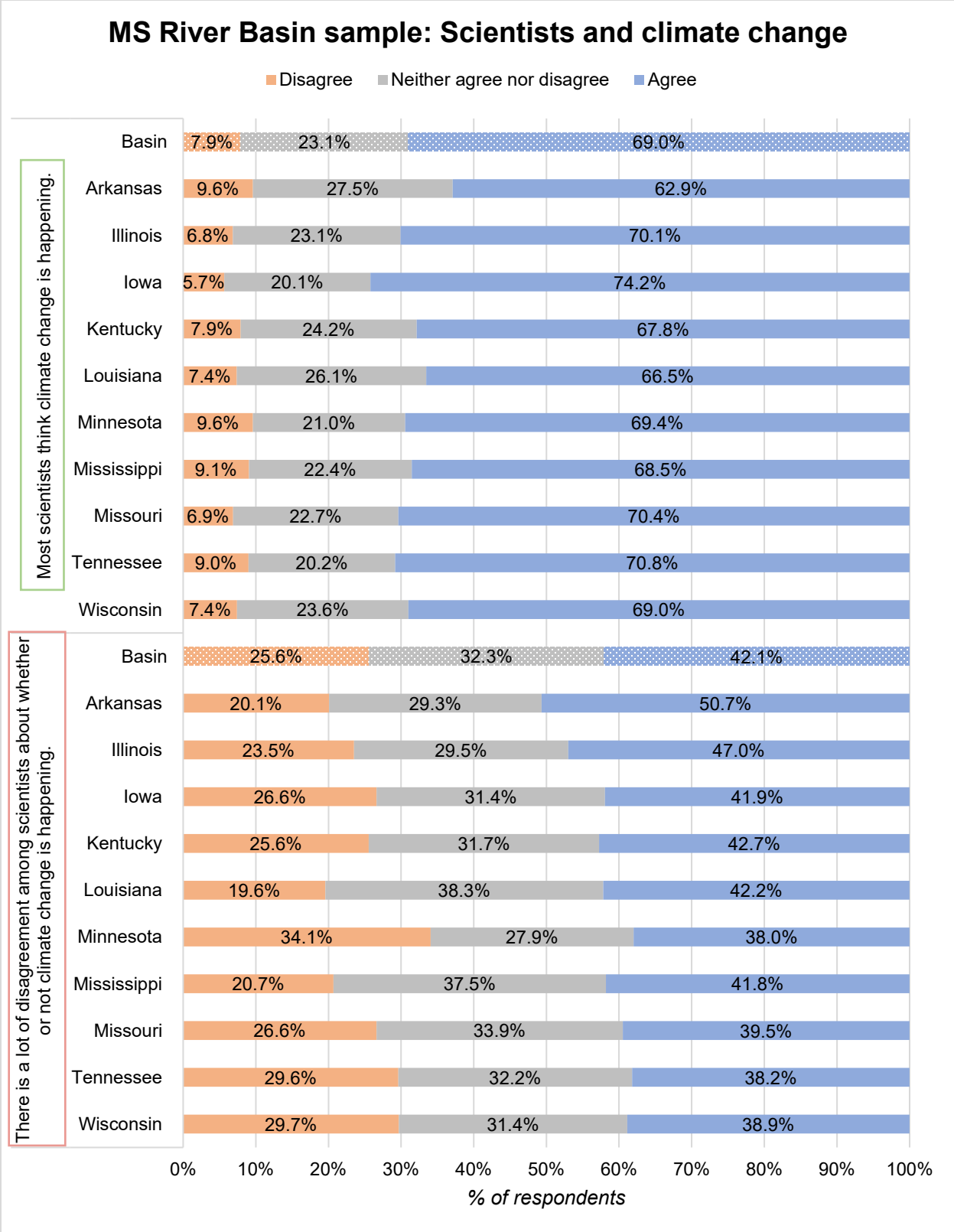


Figure A2b. Basin sample views about scientists, the scientific consensus for climate change. [5-point scale, from 1='Strongly disagree' to 5='Strongly agree,' "How much do you agree or disagree with the following statements about climate change?" Statements as shown.]

Finally, both surveys asked questions to determine what people thought was the primary driver of climate change (global warming), specifically whether it is caused mostly by human activity or natural changes in the environment. Again, the surveys addressed this concept in different ways and using different terminology (Yale “global warming” vs. Basin “climate change”), challenging a direct comparison (see Yale Figure A3a and Basin Figure A3b). Similar to the questions about scientific consensus, the Yale survey used a single choice question assessing what statement most closely represented respondents’ views while the Basin survey asked two separate questions assessing agreement with each item.

The results from both surveys indicated that a greater percentage of respondents thought that climate change was caused mostly by human activities than thought it was mostly caused by natural changes. Once again due to the structure of how the questions were asked, although there were similarities in response patterns, the exact proportion of respondents who viewed human activities (or natural changes) as the primary cause of climate change varied. In most states, for example, the Basin sample had higher levels of endorsement for the statement that natural changes drive climate change.

As explained in greater detail in the report, the responses to the two items asking about human activity and natural changes as drivers of climate change in the Basin survey had a moderate negative correlation (Pearson’s $R = -.35$, $p < .001$), meaning that people generally endorsed one cause of climate change over the other (i.e., those who agreed with one statement, or cause, generally disagreed with the other). Because the correlation is only moderate, however, there are respondents who did endorse both causes or neither. That is, people may be making more nuanced judgments about multiple causes of climate change or may not feel informed enough to state whether human activity or natural causes are or are not the primary causes. When encouraged to make a call between causes directly, as in the Yale survey, respondents appear to opt for human activity.

Yale sample: Causes of global warming

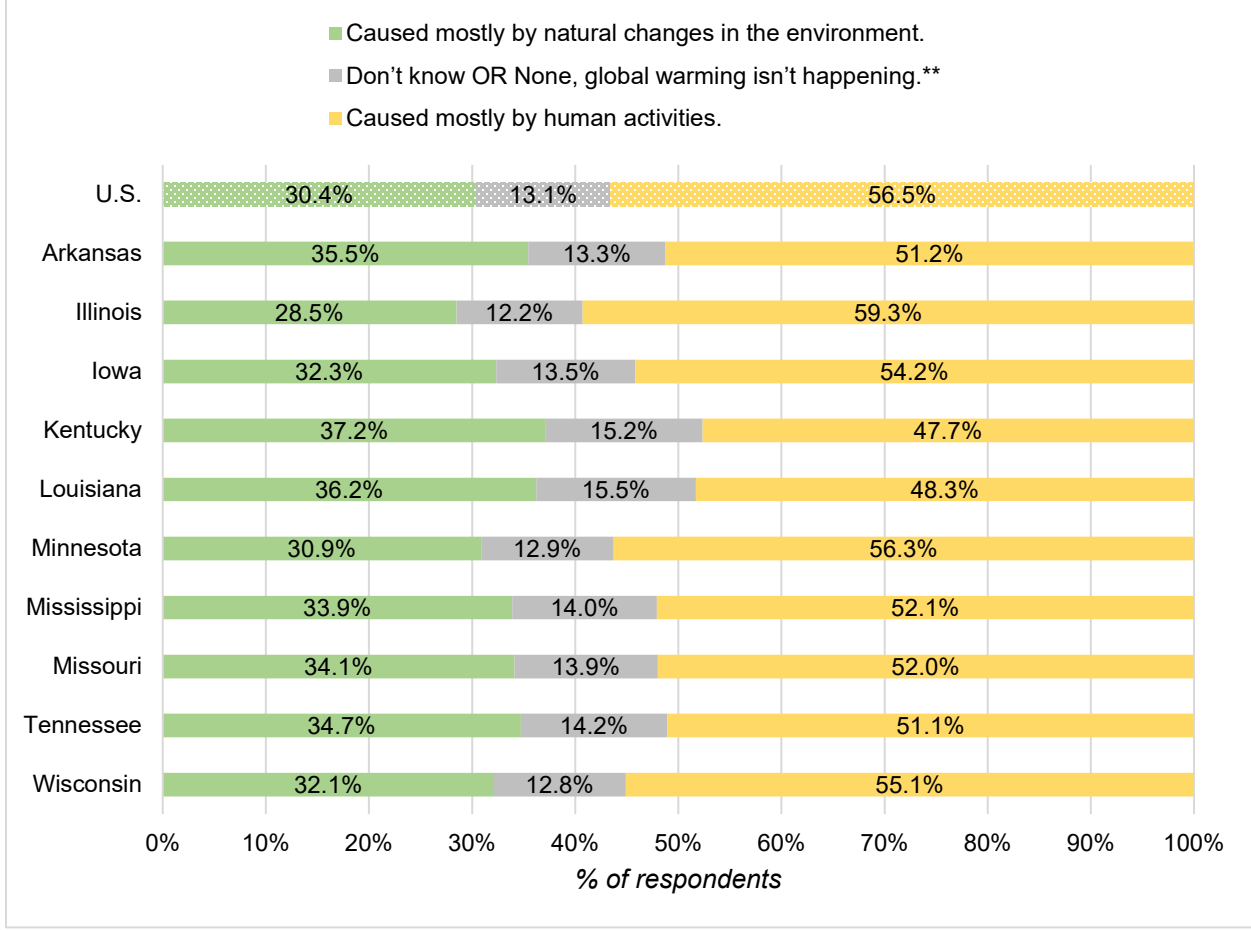


Figure A3a. Yale sample views about the causes of climate change. [Single choice; “Assuming global warming is happening, do you think it is...?” A) ‘Caused mostly by human activities;’ B) ‘Caused mostly by natural changes in the environment;’ C) ‘None of the above because global warming isn’t happening;’ or D) ‘Don’t know.’ **Responses C and D were grouped in the available data.]

MS River Basin sample: Causes of climate change

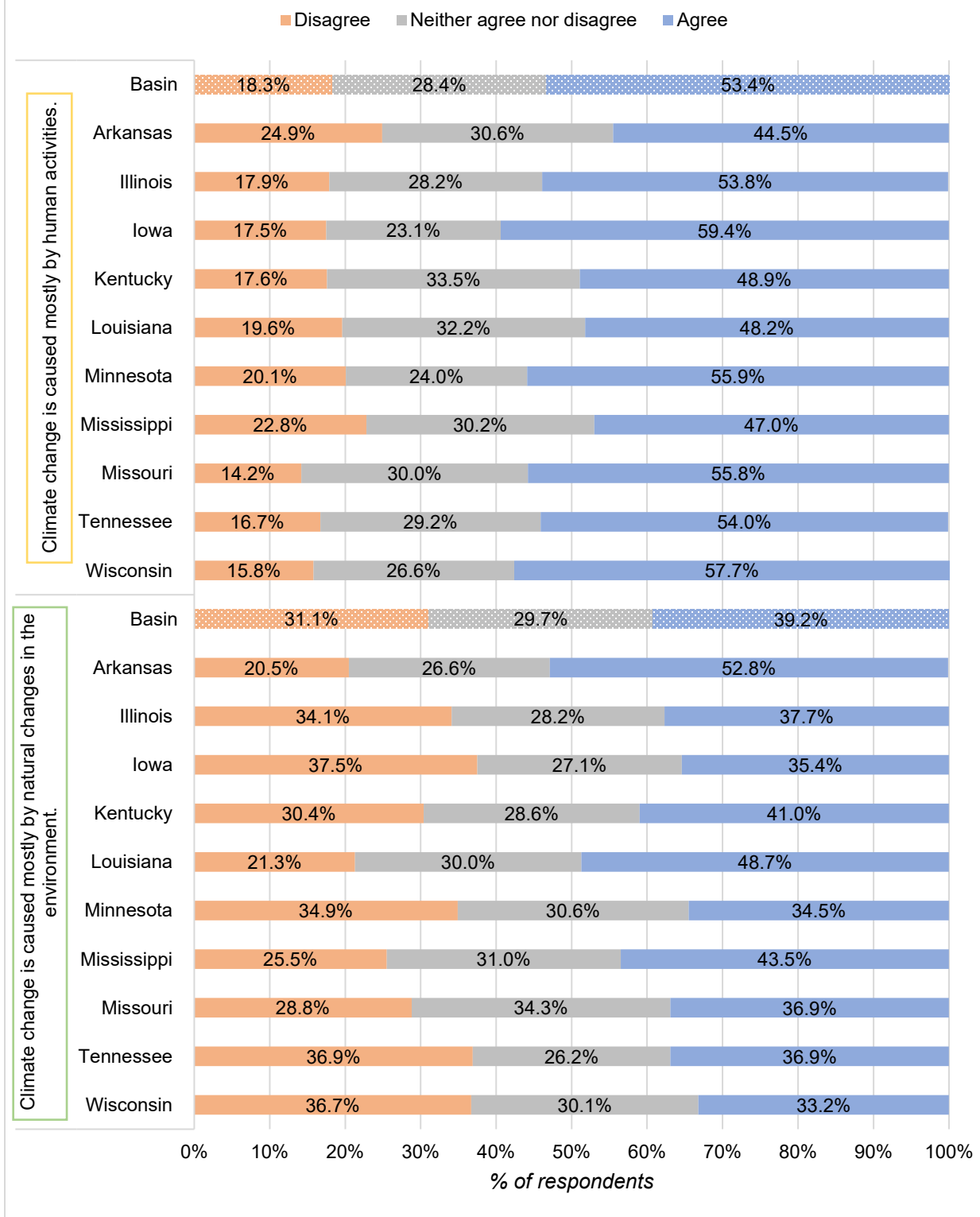


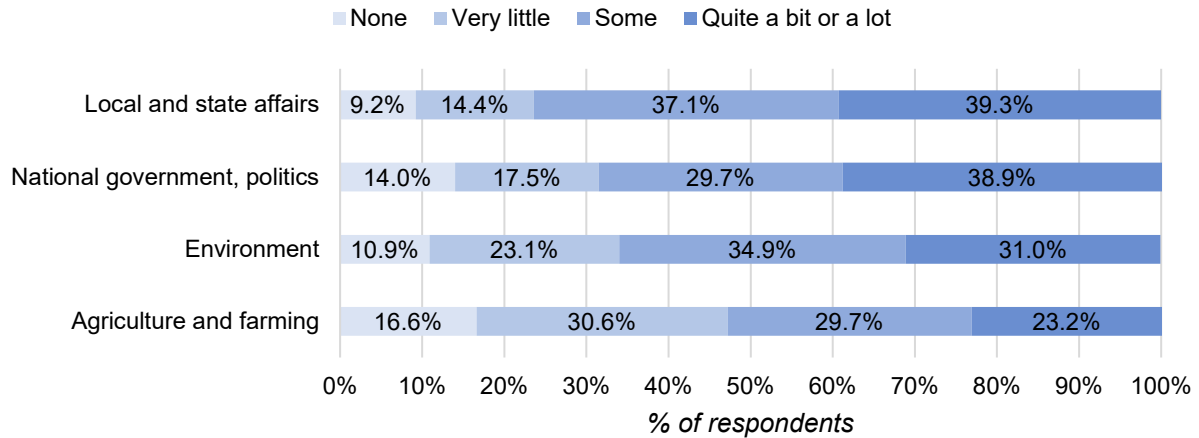
Figure A3b. Basin sample views about the causes of climate change. [5-point scale, from 1='Strongly disagree' to 5='Strongly agree,' "How much do you agree or disagree with the following statements about climate change?"]

Appendix B: Arkansas demographics and selected attitudes

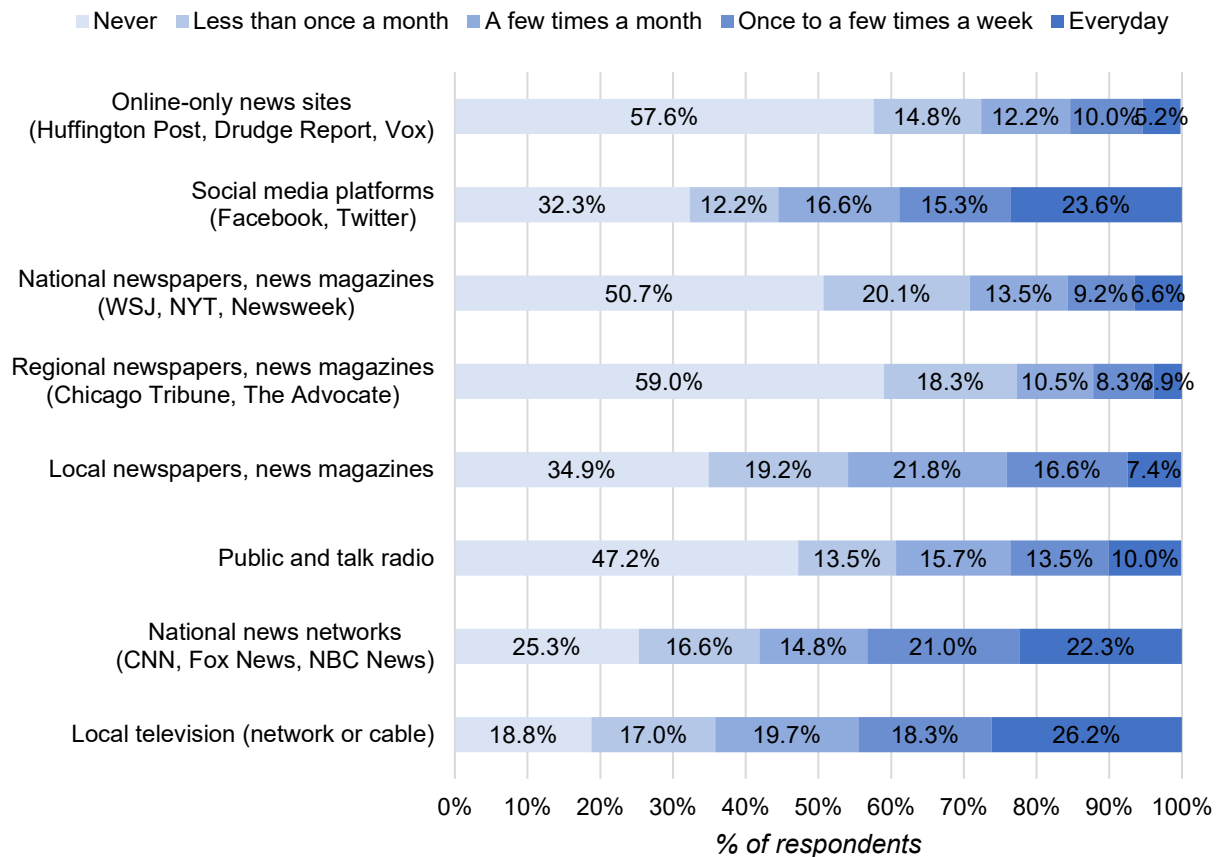
Table A1. Arkansas sample demographics (n=229).

Demographic	Frequency	Average
Age	18-24 years old	13.1%
	25-34 years old	14.8%
	35-44 years old	17.5%
	45-54 years old	16.6%
	55-64 years old	15.7%
	65 and older	22.3%
		M=47.6, SD=17.6 Median=47.0
Gender	Female	50.2%
	Male	48.9%
	Other/self-describe	0.9%
Race	White	70.3%
	Black	16.2%
	Latino or Hispanic	4.4%
	Asian	--
	Native American, indigenous	1.3%
	Other	--
	Mixed race	7.9%
Education	Some high school	7.9%
	High school or GED	38.9%
	Some college	18.8%
	Two-year college, associate	13.5%
	Four-year college, bachelor's	12.7%
	Graduate, professional	8.3%
		M=3.1, SD=1.4 Median=3.0 (scale 1-6)
Income	Less than \$29,999	38.4%
	\$30,000 to \$49,999	24.1%
	\$50,000 to \$74,999	14.4%
	\$75,000 to \$99,999	10.6%
	\$100,000 to \$150,000	10.6%
	More than \$150,000	1.9%
		M=2.4, SD=1.4 Median=2.0 (scale 1-6)
Residence	Urban	24.9%
	Suburban	28.8%
	Rural	46.3%
Religious guidance	No guidance (0)	21.0%
	Low guidance (1-3)	7.9%
	Moderate guidance (4-6)	24.5%
	High guidance (7-9)	16.2%
	Complete guidance (10)	30.6%
		M=5.8, SD=3.8 Median=6.0 (scale 0-10)
Political ideology (social, economic issues)	Liberal	10.5%
	Liberal-leaning	13.5%
	Moderate	33.2%
	Conservative-leaning	19.7%
	Conservative	23.1%
		M=4.4, SD=1.5 Median=4.0 (scale 1-7)

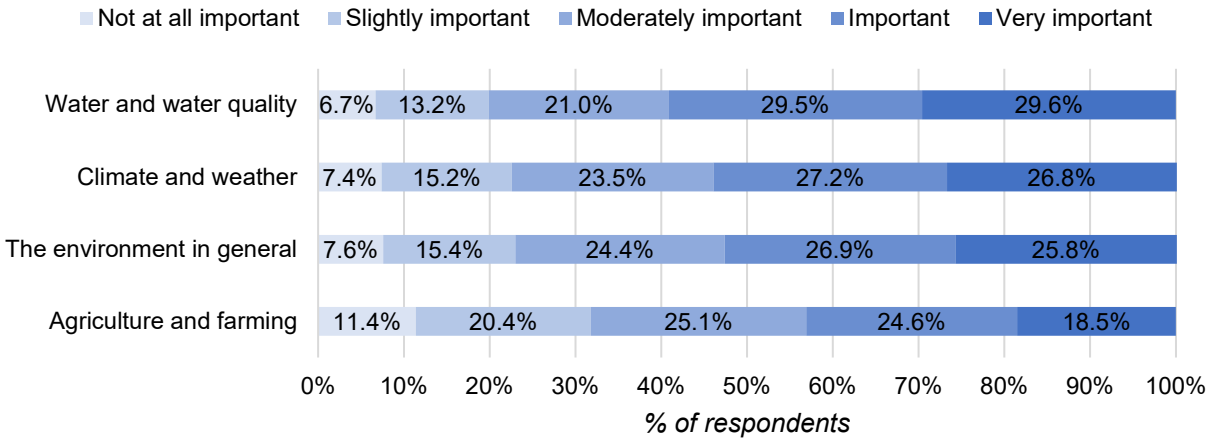
Attention to current affairs news (Arkansas)



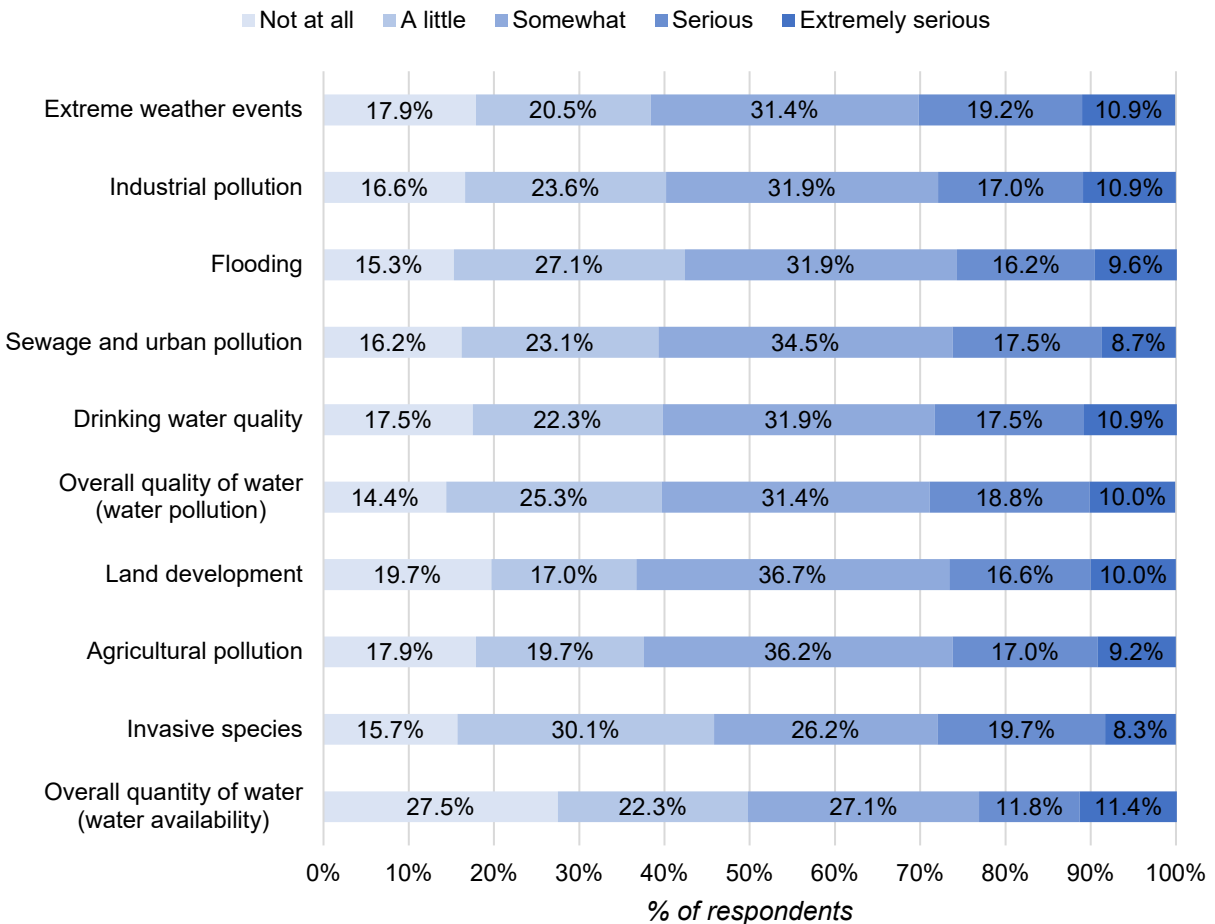
Media use for news about agriculture, the environment (Arkansas)



Importance of general environmental topics (Arkansas)



Seriousness of current problems in Arkansas

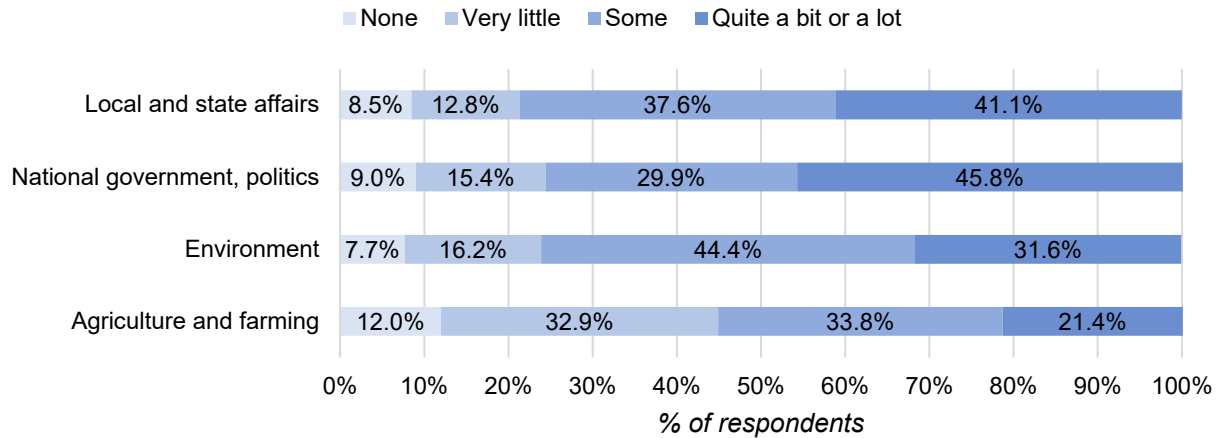


Appendix C: Illinois demographics and selected attitudes

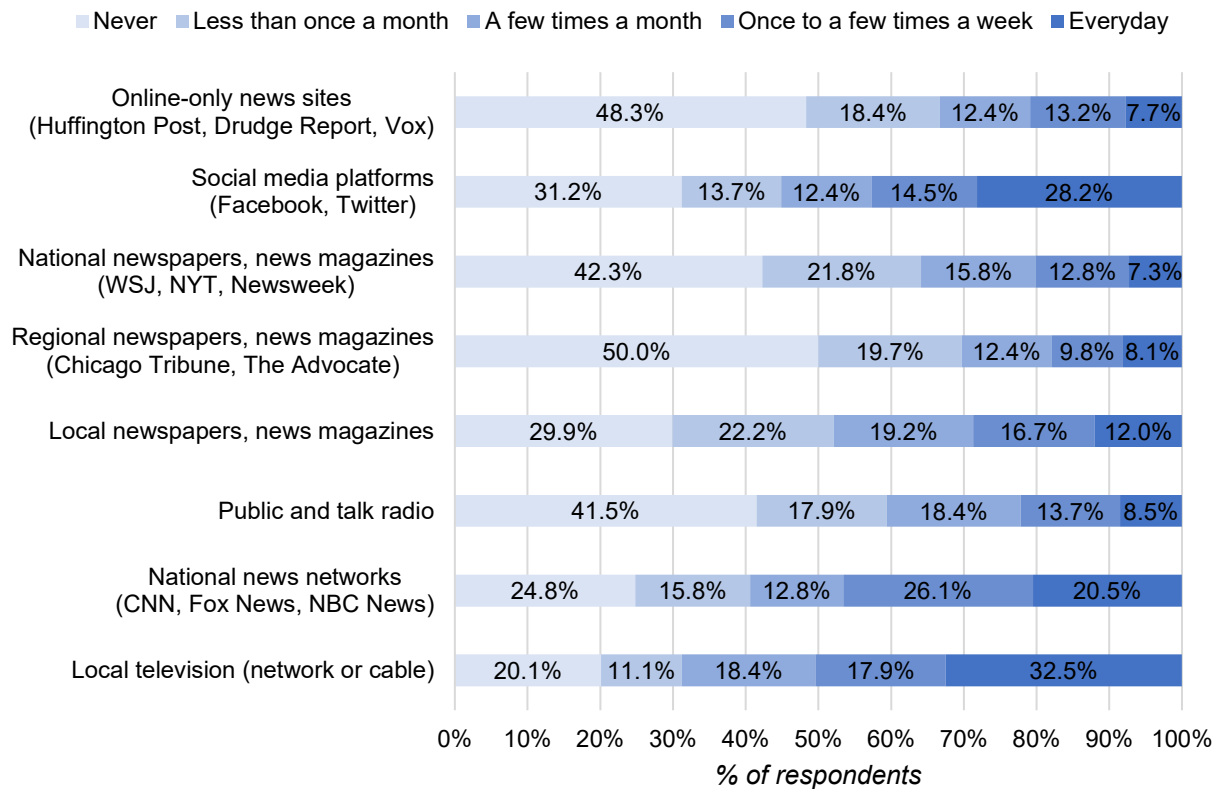
Table A2. Illinois sample demographics (n=234).

Demographic	Frequency	Average
Age	18-24 years old	12.9%
	25-34 years old	18.9%
	35-44 years old	14.6%
	45-54 years old	15.0%
	55-64 years old	18.0%
	65 and older	20.6%
		M=46.8, SD=17.3 Median=47.0
Gender	Female	50.0%
	Male	48.7%
	Other/self-describe	1.3%
Race	White	62.4%
	Black	15.0%
	Latino or Hispanic	10.7%
	Asian	2.6%
	Native American, indigenous	0.4%
	Other	--
	Mixed race	9.0%
Education	Some high school	3.4%
	High school or GED	27.8%
	Some college	27.4%
	Two-year college, associate	9.8%
	Four-year college, bachelor's	22.6%
	Graduate, professional	9.0%
		M=3.5, SD=1.4 Median=3.0 (scale 1-6)
Income	Less than \$29,999	29.1%
	\$30,000 to \$49,999	22.9%
	\$50,000 to \$74,999	21.5%
	\$75,000 to \$99,999	15.7%
	\$100,000 to \$150,000	7.6%
	More than \$150,000	3.1%
		M=2.9, SD=1.4 Median=2.0 (scale 1-6)
Residence	Urban	27.8%
	Suburban	41.0%
	Rural	31.2%
Religious guidance	No guidance (0)	12.8%
	Low guidance (1-3)	12.0%
	Moderate guidance (4-6)	28.6%
	High guidance (7-9)	26.9%
	Complete guidance (10)	19.7%
		M=5.8, SD=3.3 Median=6.0 (scale 0-10)
Political ideology (social, economic issues)	Liberal	18.8%
	Liberal-leaning	13.2%
	Moderate	35.0%
	Conservative-leaning	15.0%
	Conservative	17.9%
		M=4.0, SD=1.7 Median=4.0 (scale 1-7)

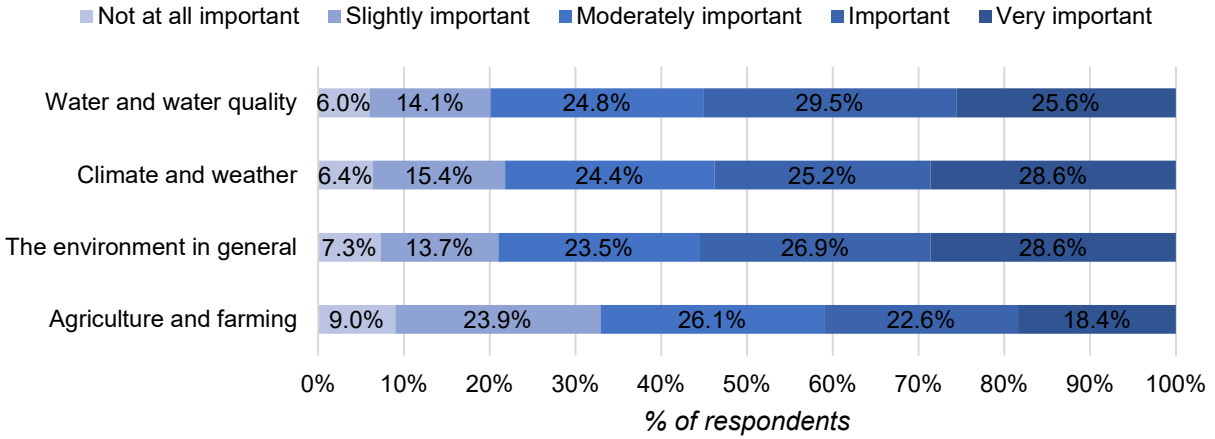
Attention to current affairs news (Illinois)



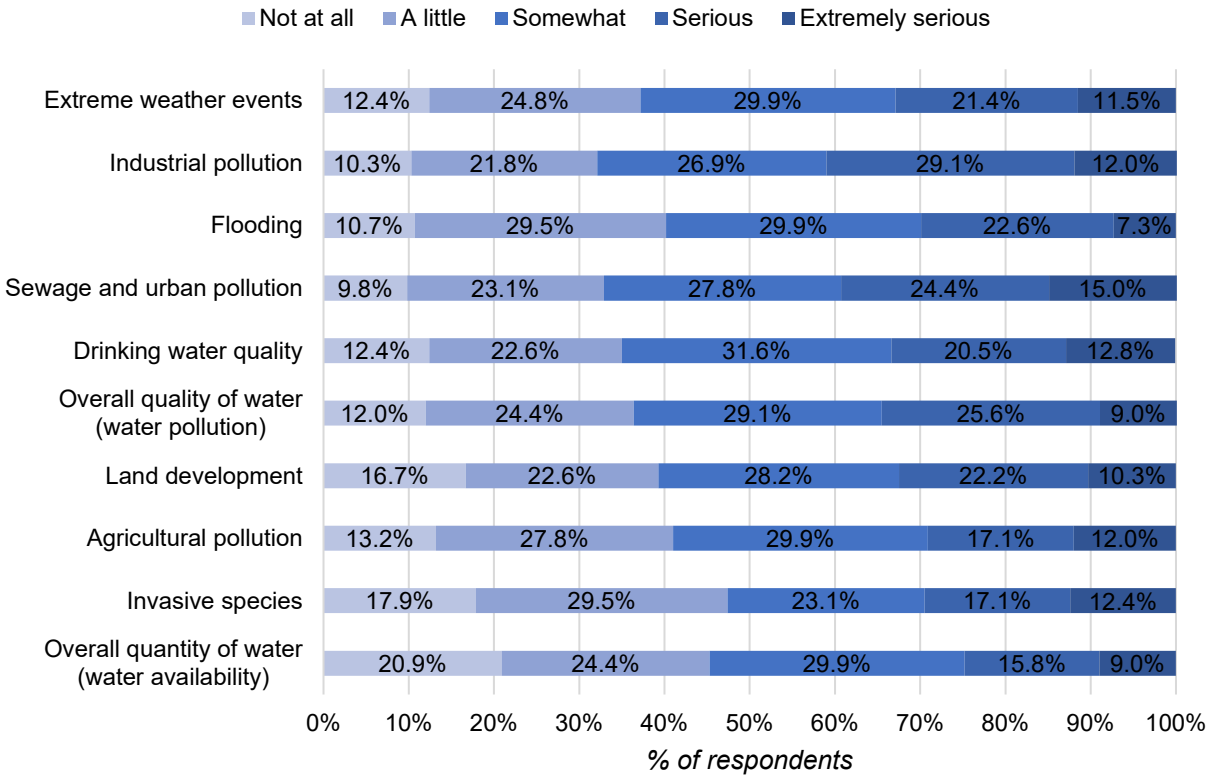
Media use for news about agriculture, the environment (Illinois)



Importance of general environmental topics (Illinois)



Seriousness of current problems in Illinois

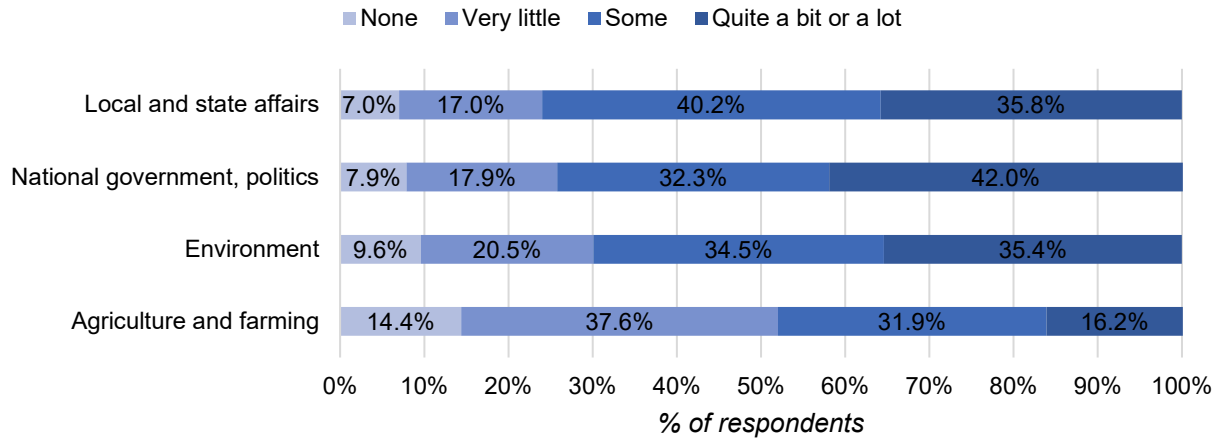


Appendix D: Iowa demographics and selected attitudes

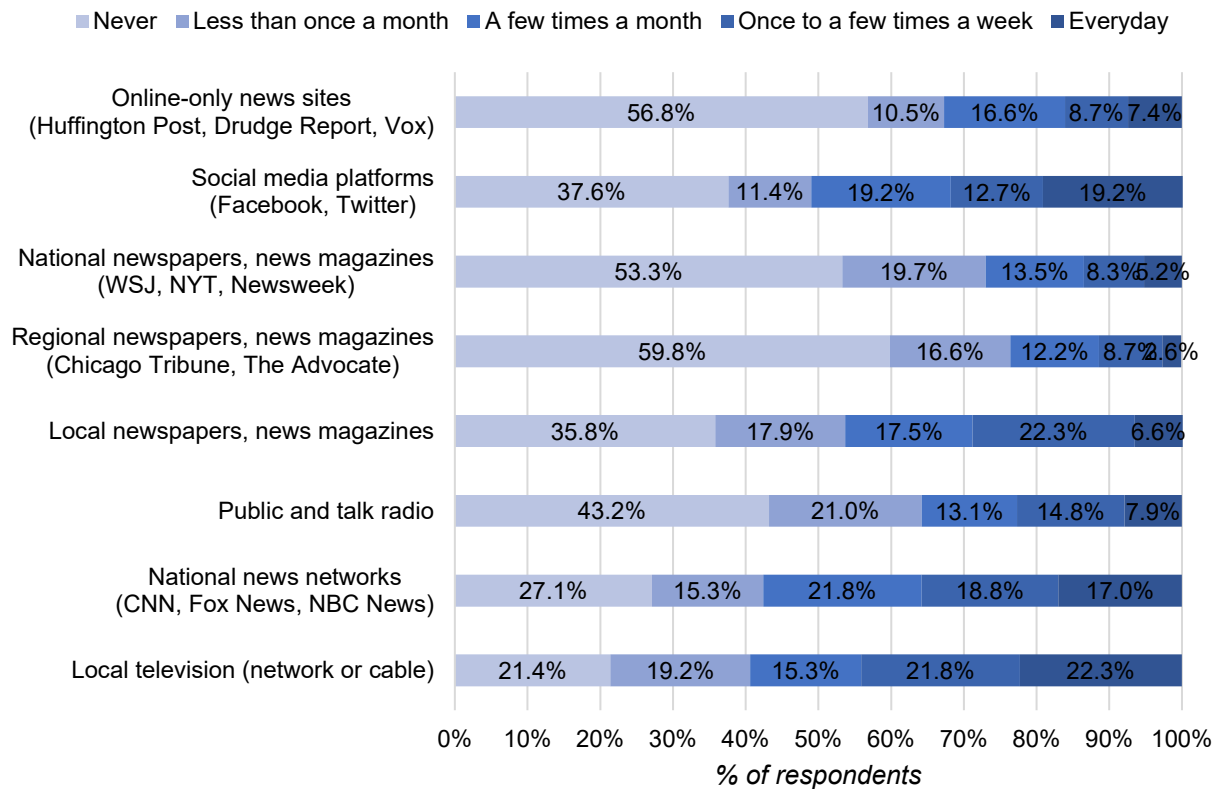
Table A3. Iowa sample demographics (n=229).

Demographic	Frequency	Average
Age	18-24 years old	13.2%
	25-34 years old	14.5%
	35-44 years old	17.5%
	45-54 years old	17.5%
	55-64 years old	14.0%
	65 and older	23.2%
		M=47.5, SD=17.4 Median=48.0
Gender	Female	50.2%
	Male	49.3%
	Other/self-describe	0.4%
Race	White	86.5%
	Black	3.1%
	Latino or Hispanic	3.9%
	Asian	2.2%
	Native American, indigenous	0.4%
	Other	--
	Mixed race	3.9%
Education	Some high school	4.4%
	High school or GED	31.0%
	Some college	24.5%
	Two-year college, associate	12.2%
	Four-year college, bachelor's	19.2%
	Graduate, professional	8.7%
		M=3.4, SD=1.4 Median=3.0 (scale 1-6)
Income	Less than \$29,999	21.4%
	\$30,000 to \$49,999	25.5%
	\$50,000 to \$74,999	21.8%
	\$75,000 to \$99,999	16.4%
	\$100,000 to \$150,000	11.4%
	More than \$150,000	3.6%
		M=2.8, SD=1.4 Median=3.0 (scale 1-6)
Residence	Urban	27.9%
	Suburban	31.4%
	Rural	40.6%
Religious guidance	No guidance (0)	21.4%
	Low guidance (1-3)	15.7%
	Moderate guidance (4-6)	25.3%
	High guidance (7-9)	24.5%
	Complete guidance (10)	13.1%
		M=4.9, SD=3.5 Median=5.0 (scale 0-10)
Political ideology (social, economic issues)	Liberal	18.8%
	Liberal-leaning	15.3%
	Moderate	32.3%
	Conservative-leaning	13.1%
	Conservative	20.5%
		M=4.1, SD=1.7 Median=4.0 (scale 1-7)

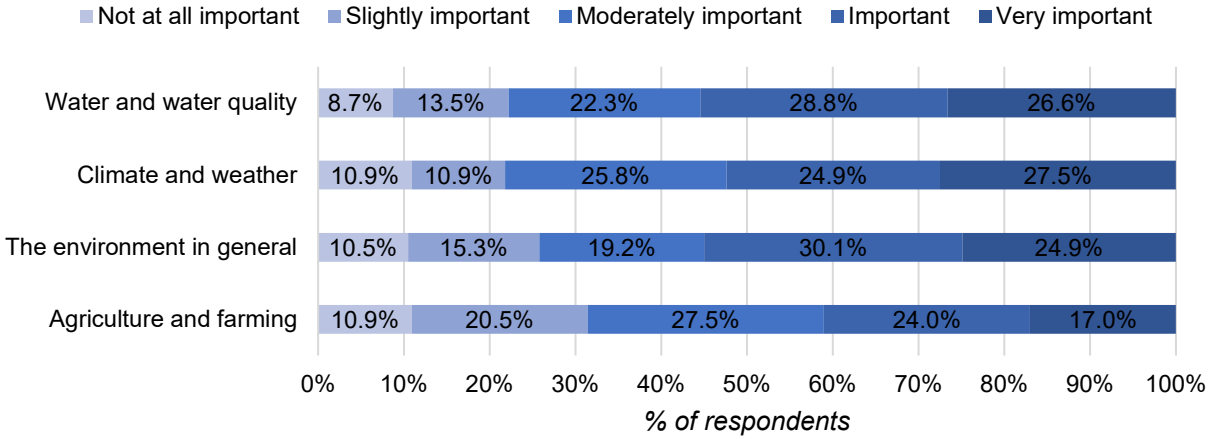
Attention to current affairs news (Iowa)



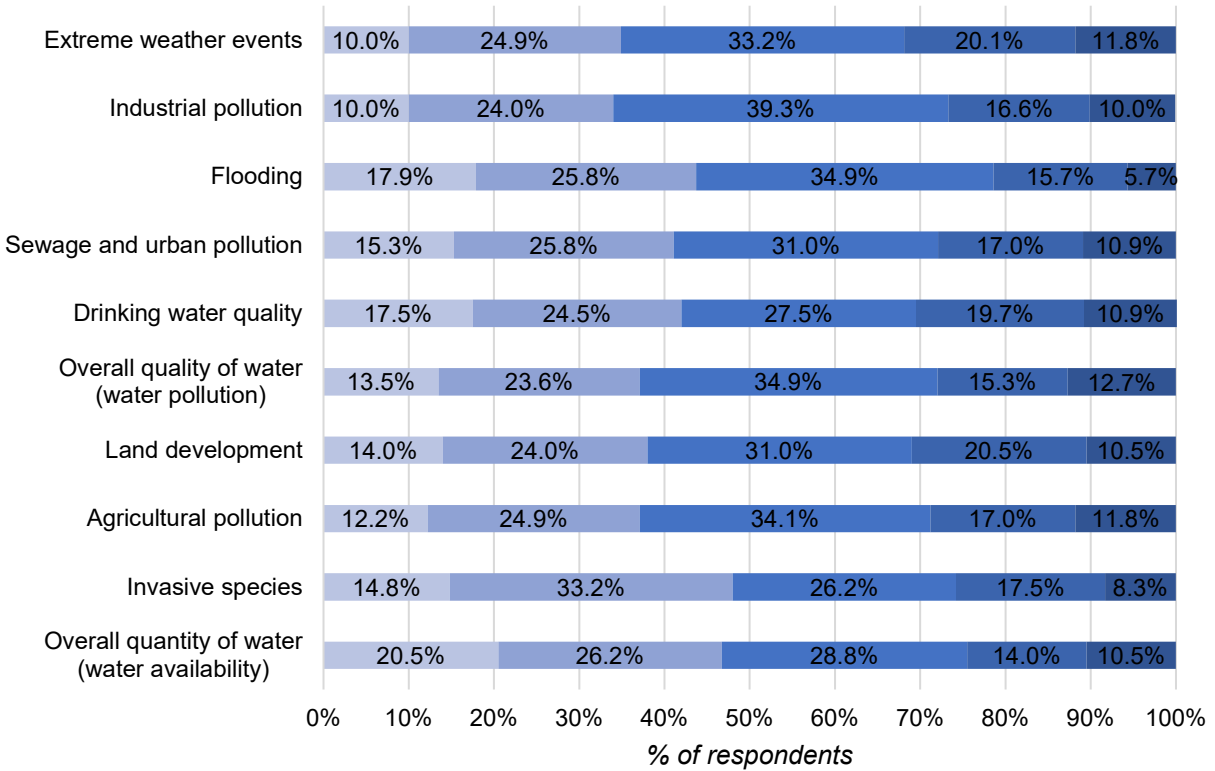
Media use for news about agriculture, the environment (Iowa)



Importance of general environmental topics (Iowa)



Seriousness of current problems in Iowa

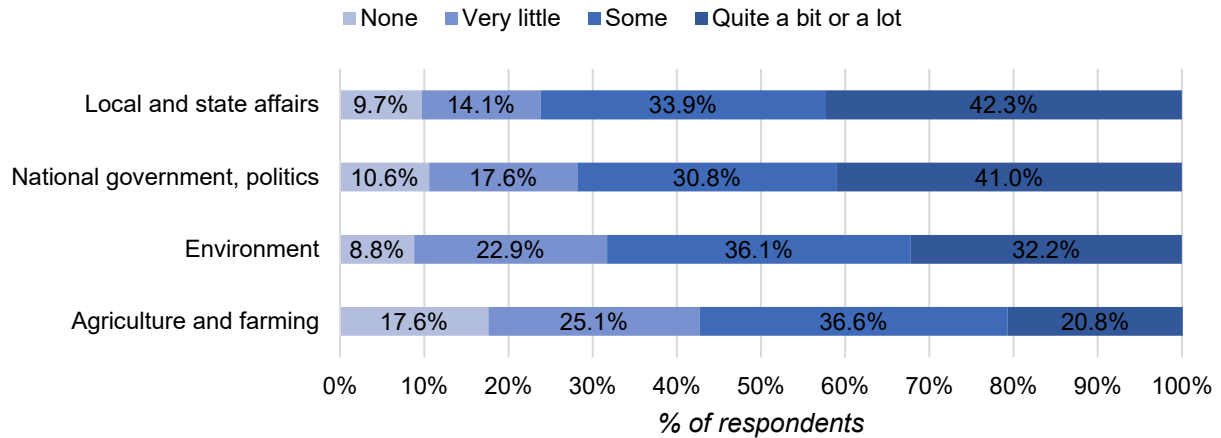


Appendix E: Kentucky demographics and selected attitudes

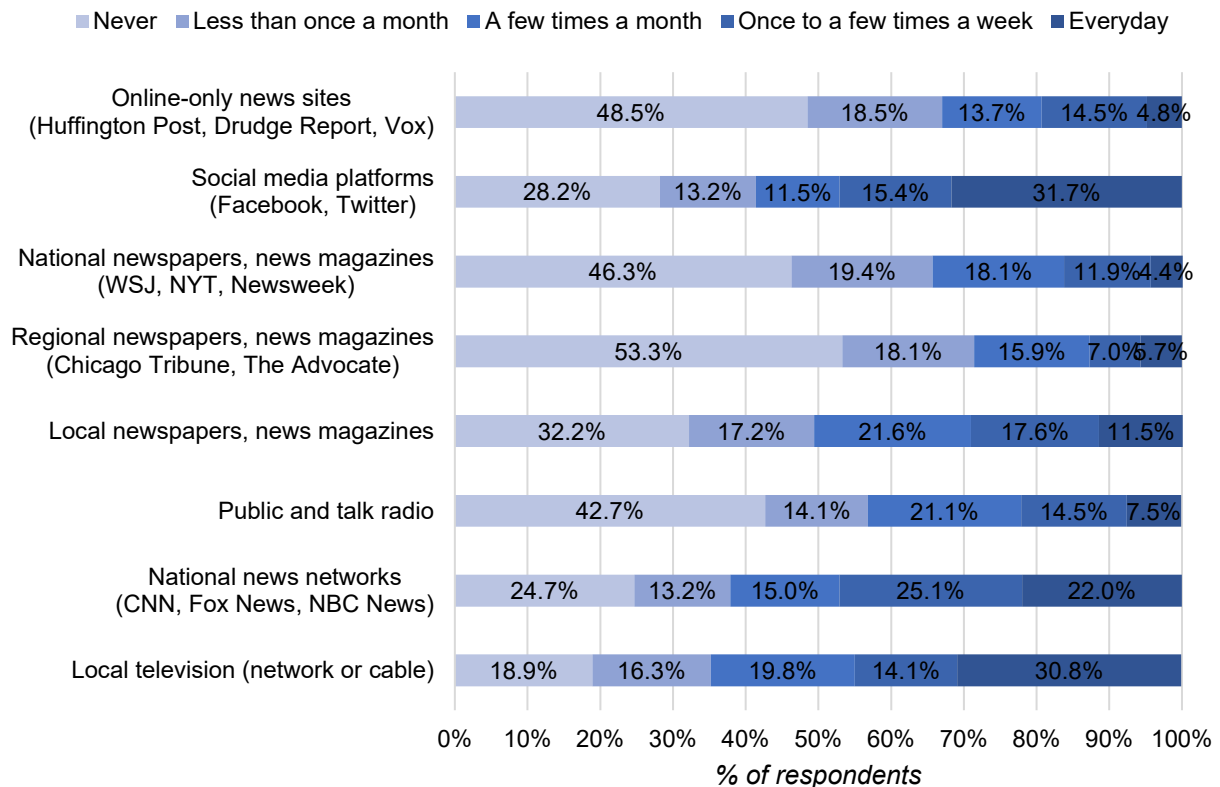
Table A4. Kentucky sample demographics (n=227).

Demographic	Frequency	Average
Age	18-24 years old	11.9%
	25-34 years old	13.7%
	35-44 years old	19.4%
	45-54 years old	17.2%
	55-64 years old	15.9%
	65 and older	22.0%
		M=48.1, SD=17.4 Median=49.0
Gender	Female	51.5%
	Male	48.5%
	Other/self-describe	--
Race	White	85.5%
	Black	7.9%
	Latino or Hispanic	1.3%
	Asian	0.4%
	Native American, indigenous	0.4%
	Other	--
	Mixed race	4.4%
Education	Some high school	10.1%
	High school or GED	40.1%
	Some college	25.1%
	Two-year college, associate	4.8%
	Four-year college, bachelor's	15.9%
	Graduate, professional	4.0%
		M=2.9, SD=1.4 Median=2.0 (scale 1-6)
Income	Less than \$29,999	33.8%
	\$30,000 to \$49,999	30.0%
	\$50,000 to \$74,999	17.4%
	\$75,000 to \$99,999	10.8%
	\$100,000 to \$150,000	7.0%
	More than \$150,000	0.9%
		M=2.3, SD=1.3 Median=2.0 (scale 1-6)
Residence	Urban	18.5%
	Suburban	35.2%
	Rural	46.3%
Religious guidance	No guidance (0)	17.2%
	Low guidance (1-3)	8.4%
	Moderate guidance (4-6)	22.0%
	High guidance (7-9)	29.5%
	Complete guidance (10)	22.9%
		M=6.0, SD=3.6 Median=7.0 (scale 0-10)
Political ideology (social, economic issues)	Liberal	14.5%
	Liberal-leaning	11.0%
	Moderate	34.8%
	Conservative-leaning	19.8%
	Conservative	19.8%
		M=4.2, SD=1.6 Median=4.0 (scale 1-7)

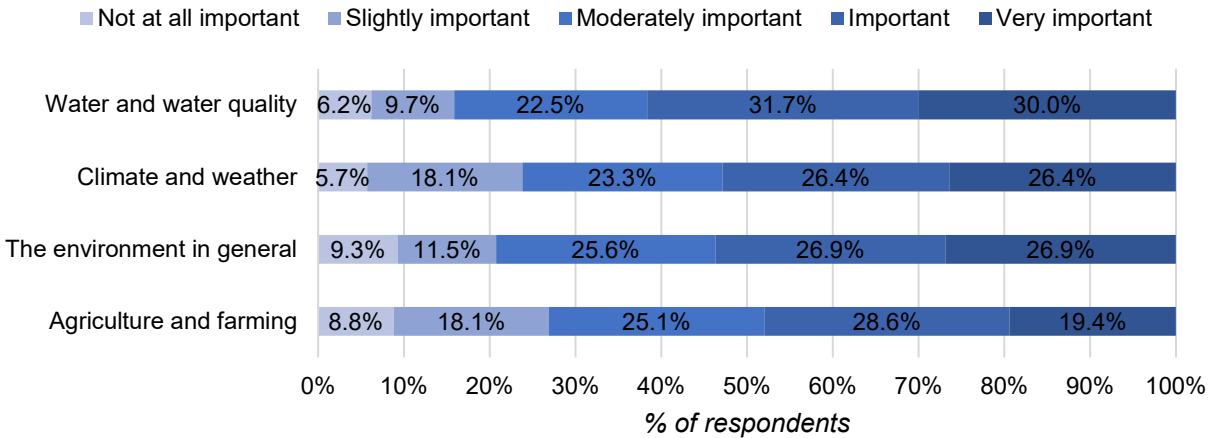
Attention to current affairs news (Kentucky)



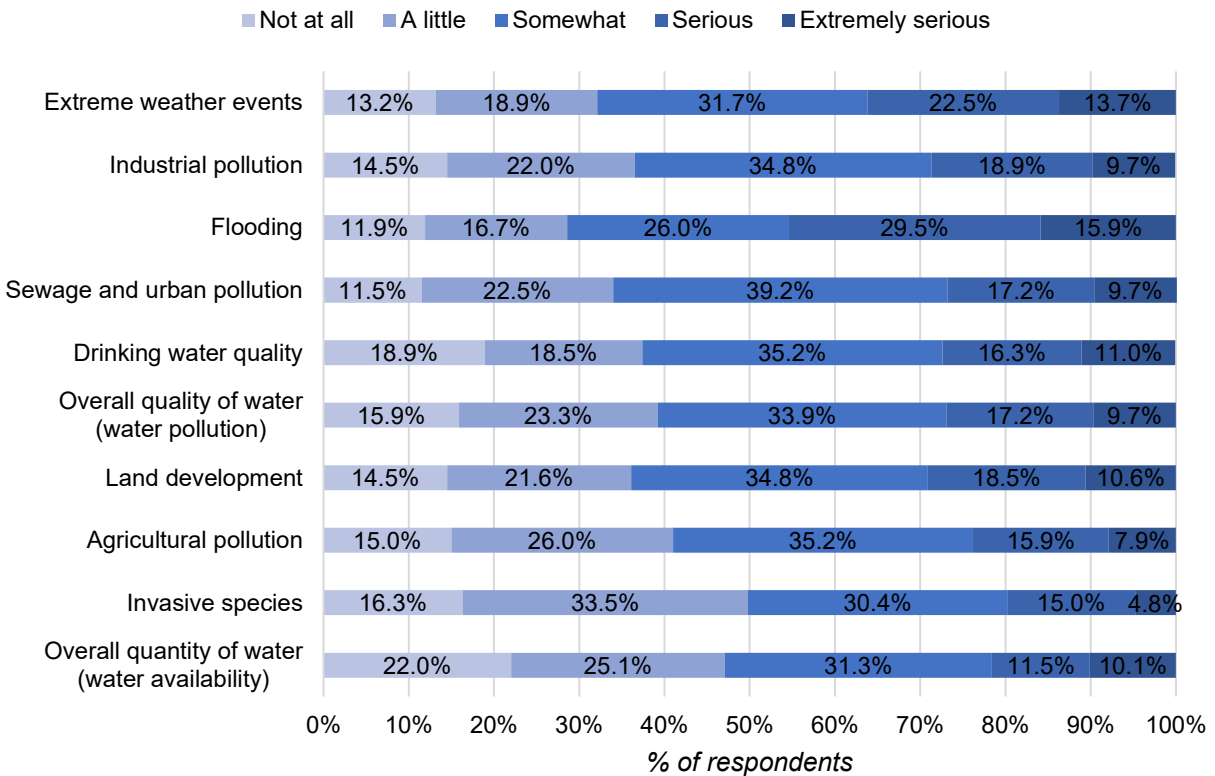
Media use for news about agriculture, the environment (Kentucky)



Importance of general environmental topics (Kentucky)



Seriousness of current problems in Kentucky

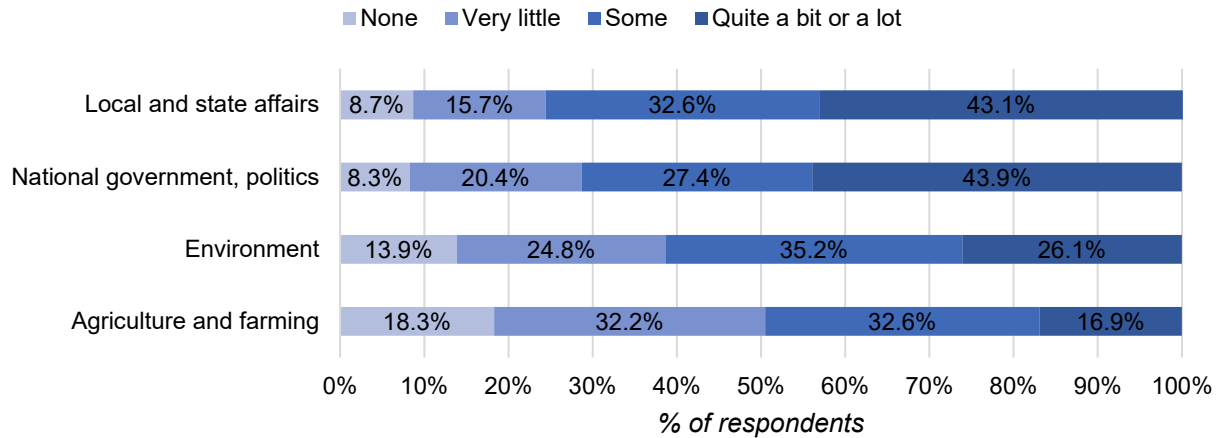


Appendix F: Louisiana demographics and selected attitudes

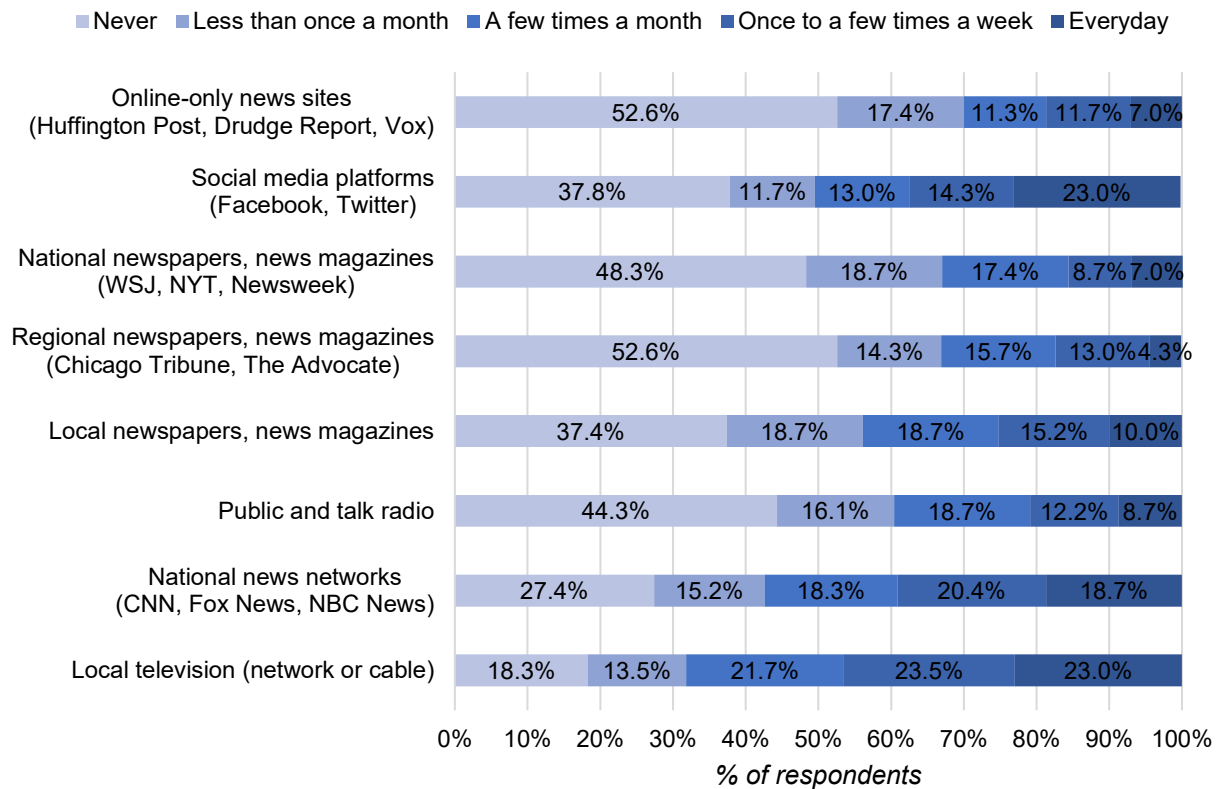
Table A5. Louisiana sample demographics (n=230).

Demographic	Frequency	Average
Age	18-24 years old	12.6%
	25-34 years old	17.8%
	35-44 years old	17.8%
	45-54 years old	16.1%
	55-64 years old	15.7%
	65 and older	20.0%
		M=46.6, SD=17.5 Median=45.0
Gender	Female	50.9%
	Male	47.4%
	Other/self-describe	1.7%
Race	White	56.5%
	Black	32.6%
	Latino or Hispanic	1.7%
	Asian	1.7%
	Native American, indigenous	0.4%
	Other	0.4%
	Mixed race	6.5%
Education	Some high school	8.7%
	High school or GED	33.0%
	Some college	20.4%
	Two-year college, associate	11.7%
	Four-year college, bachelor's	17.0%
	Graduate, professional	9.1%
		M=3.2, SD=1.5 Median=3.0 (scale 1-6)
Income	Less than \$29,999	29.0%
	\$30,000 to \$49,999	29.0%
	\$50,000 to \$74,999	19.0%
	\$75,000 to \$99,999	10.9%
	\$100,000 to \$150,000	10.0%
	More than \$150,000	2.3%
		M=2.5, SD=1.4 Median=2.0 (scale 1-6)
Residence	Urban	23.5%
	Suburban	43.0%
	Rural	33.5%
Religious guidance	No guidance (0)	13.9%
	Low guidance (1-3)	7.8%
	Moderate guidance (4-6)	23.5%
	High guidance (7-9)	22.6%
	Complete guidance (10)	32.2%
		M=6.3, SD=3.6 Median=7.0 (scale 0-10)
Political ideology (social, economic issues)	Liberal	13.5%
	Liberal-leaning	14.8%
	Moderate	30.9%
	Conservative-leaning	17.4%
	Conservative	23.5%
		M=4.3, SD=1.7 Median=4.0 (scale 1-7)

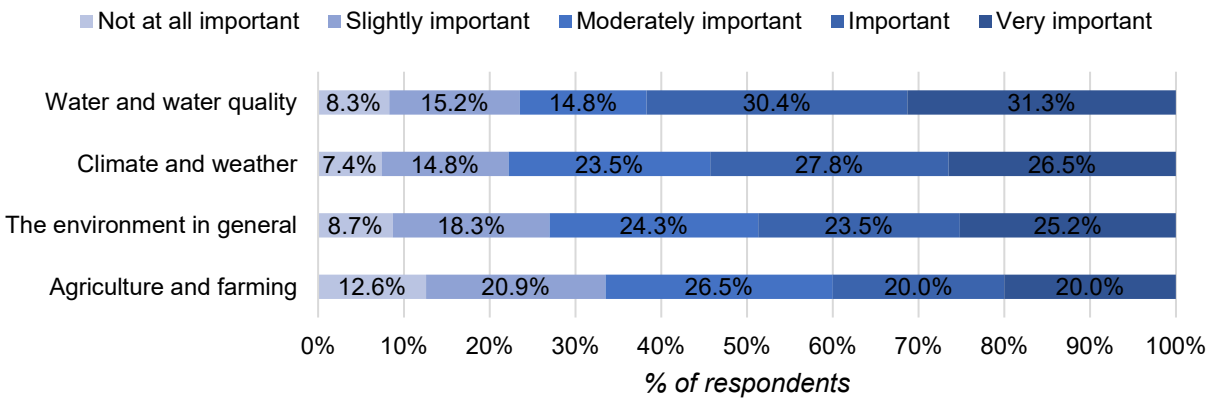
Attention to current affairs news (Louisiana)



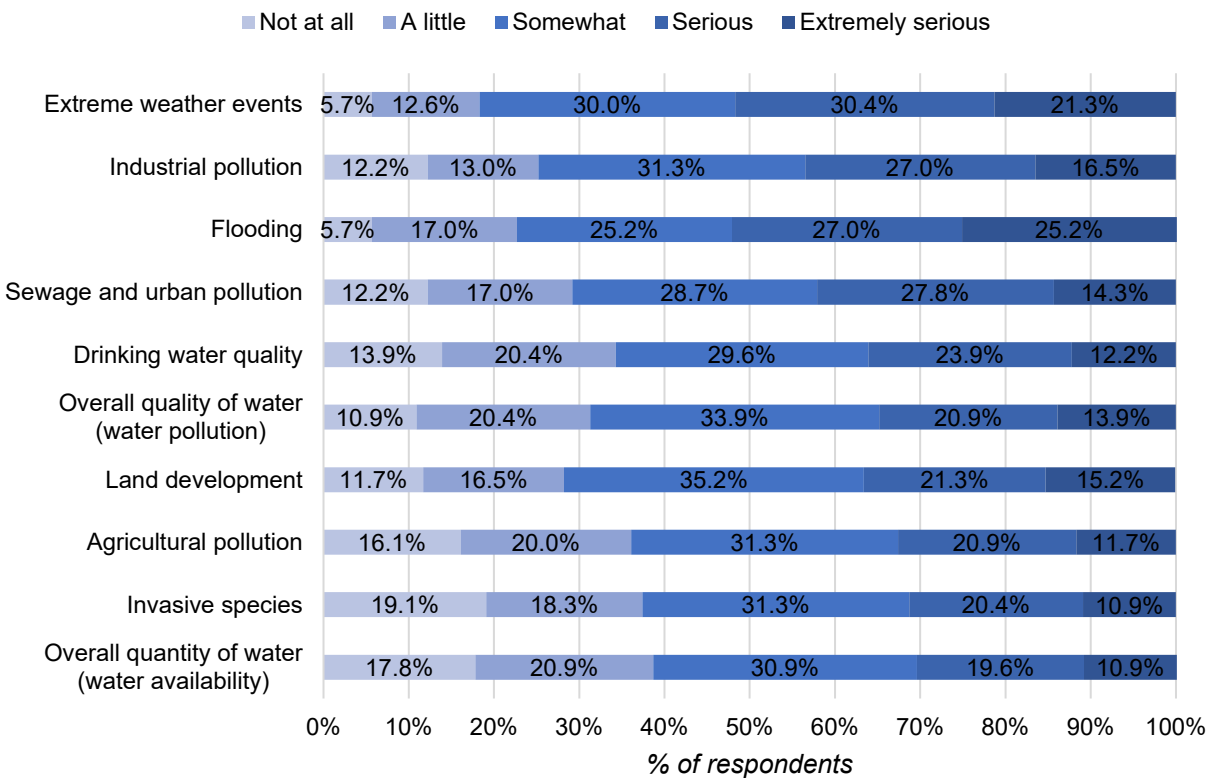
Media use for news about agriculture, the environment (Louisiana)



Importance of general environmental topics (Louisiana)



Seriousness of current problems in Louisiana

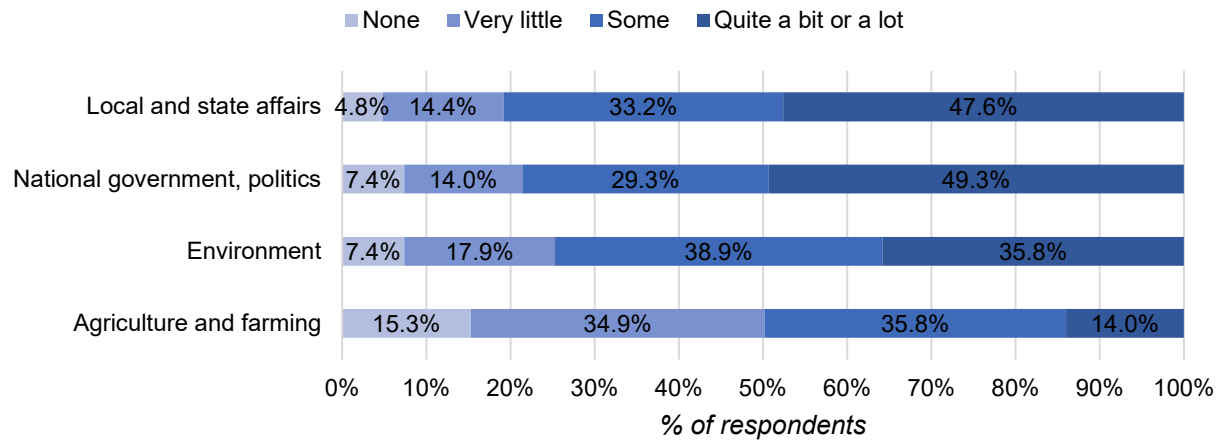


Appendix G: Minnesota demographics and selected attitudes

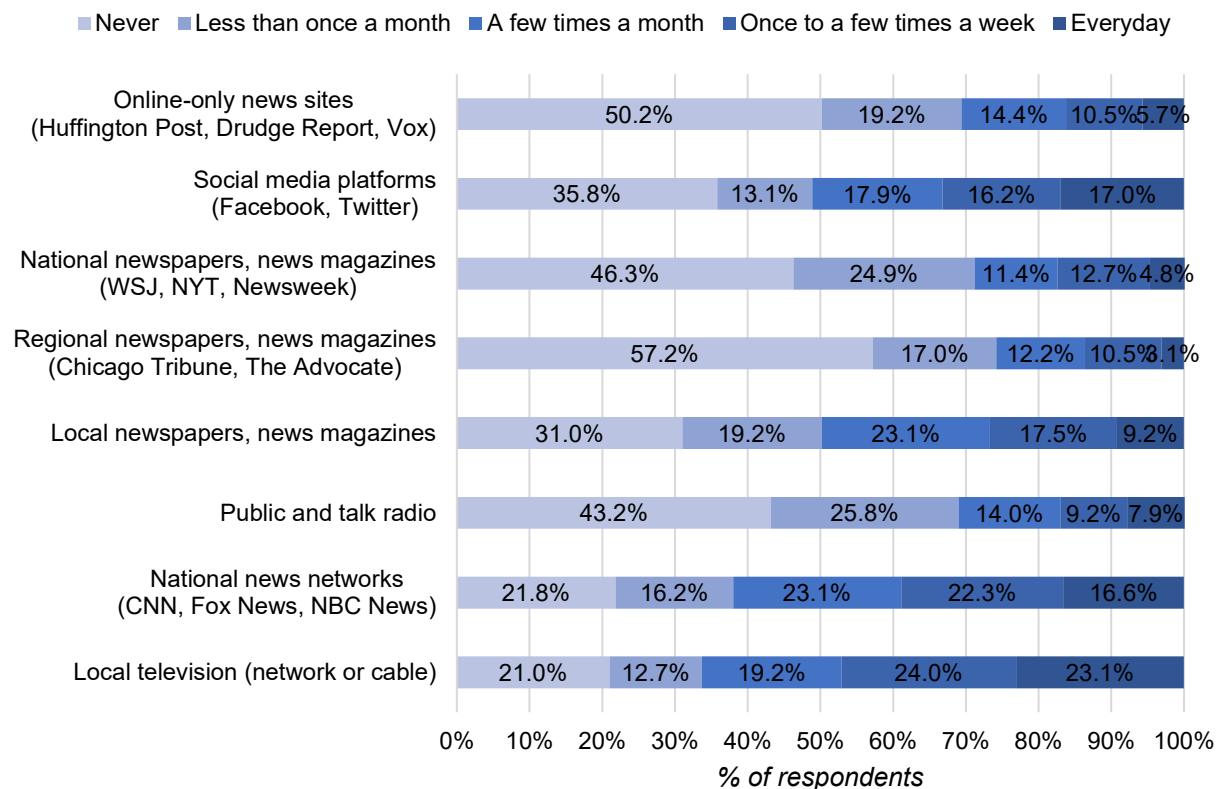
Table A6. Minnesota sample demographics (n=229).

Demographic	Frequency	Average
Age	18-24 years old	11.8%
	25-34 years old	18.3%
	35-44 years old	16.2%
	45-54 years old	15.7%
	55-64 years old	17.5%
	65 and older	20.5%
		M=47.2, SD=17.3 Median=47.0
Gender	Female	49.3%
	Male	50.2%
	Other/self-describe	0.4%
Race	White	78.6%
	Black	7.9%
	Latino or Hispanic	2.6%
	Asian	3.5%
	Native American, indigenous	1.7%
	Other	0.4%
	Mixed race	5.2%
Education	Some high school	3.1%
	High school or GED	30.1%
	Some college	20.1%
	Two-year college, associate	15.3%
	Four-year college, bachelor's	20.5%
	Graduate, professional	10.9%
		M=3.5, SD=1.5 Median=3.0 (scale 1-6)
Income	Less than \$29,999	25.6%
	\$30,000 to \$49,999	18.6%
	\$50,000 to \$74,999	20.9%
	\$75,000 to \$99,999	17.2%
	\$100,000 to \$150,000	14.0%
	More than \$150,000	3.7%
		M=2.9, SD=1.5 Median=3.0 (scale 1-6)
Residence	Urban	26.2%
	Suburban	43.7%
	Rural	30.1%
Religious guidance	No guidance (0)	18.8%
	Low guidance (1-3)	15.7%
	Moderate guidance (4-6)	22.7%
	High guidance (7-9)	29.7%
	Complete guidance (10)	13.1%
		M=5.1, SD=3.5 Median=5.0 (scale 0-10)
Political ideology (social, economic issues)	Liberal	19.7%
	Liberal-leaning	15.3%
	Moderate	29.7%
	Conservative-leaning	16.2%
	Conservative	19.2%
		M=4.0, SD=1.6 Median=4.0 (scale 1-7)

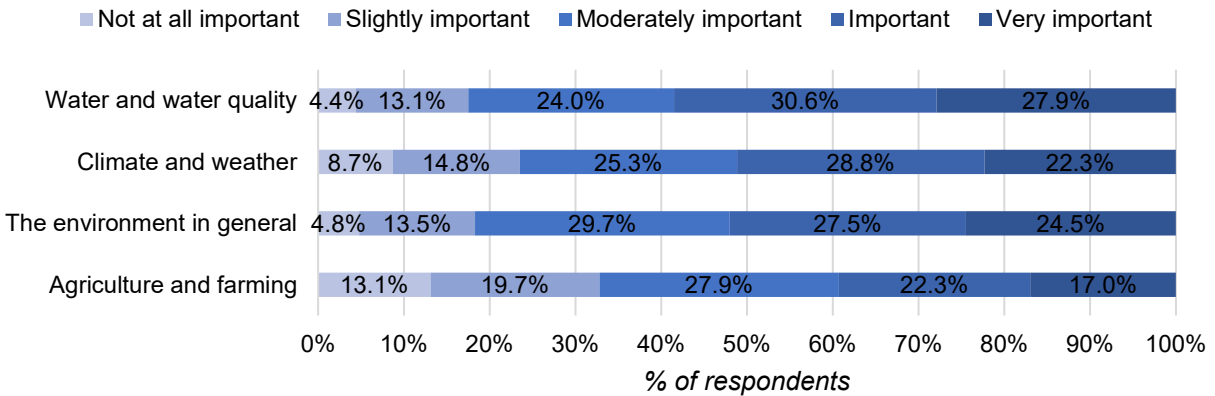
Attention to current affairs news (Minnesota)



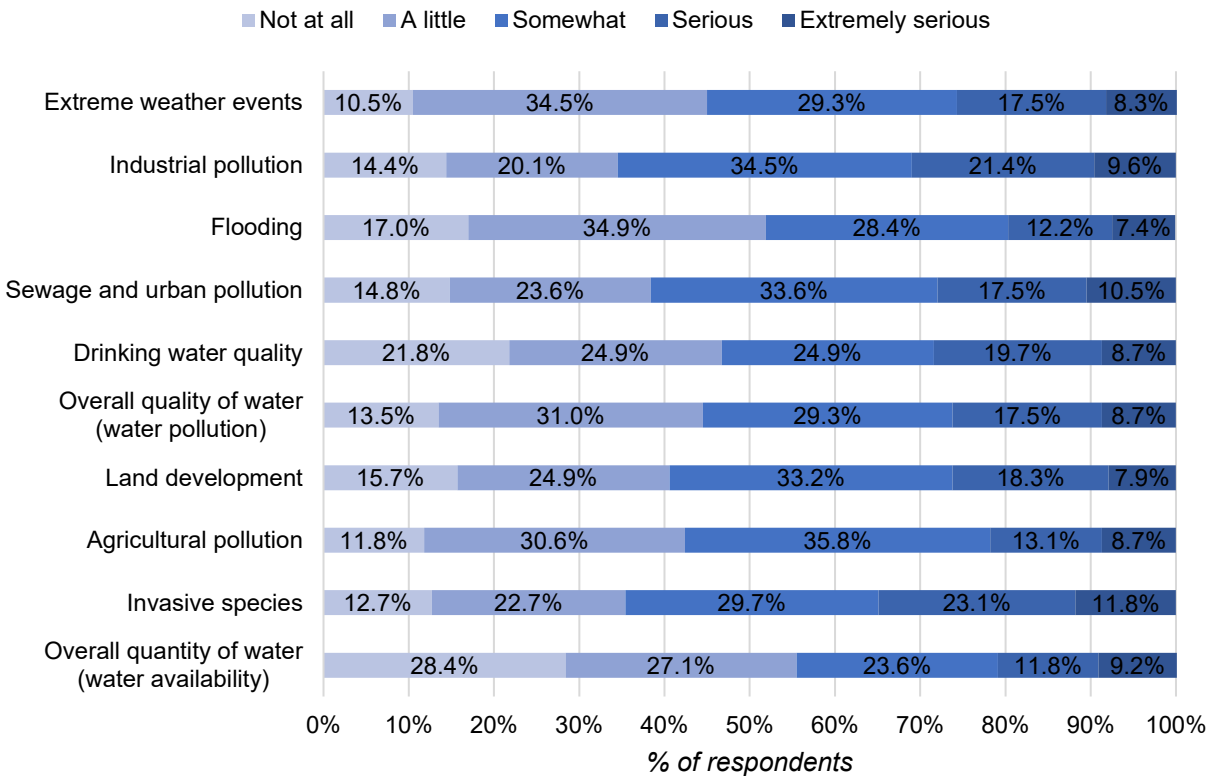
Media use for news about agriculture, the environment (Minnesota)



Importance of general environmental topics (Minnesota)



Seriousness of current problems in Minnesota

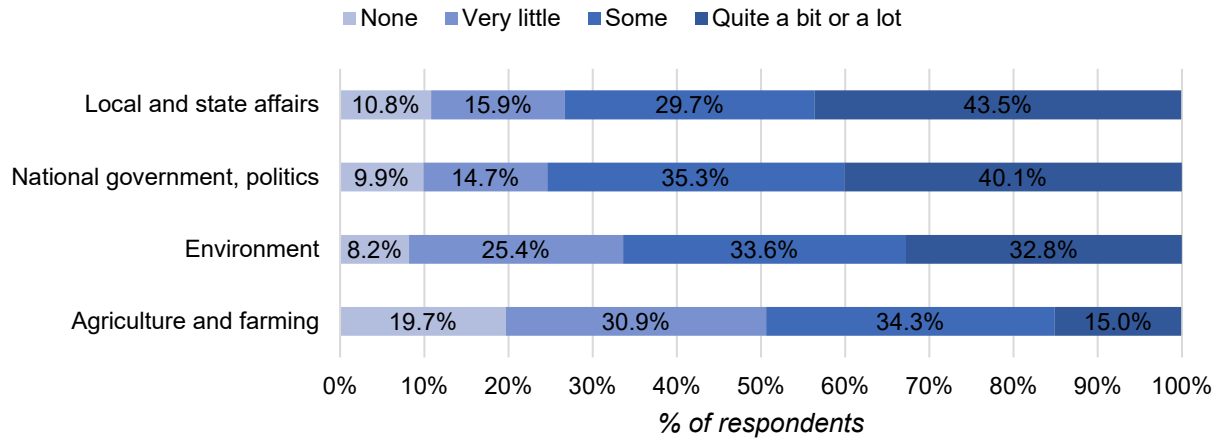


Appendix H: Mississippi demographics and selected attitudes

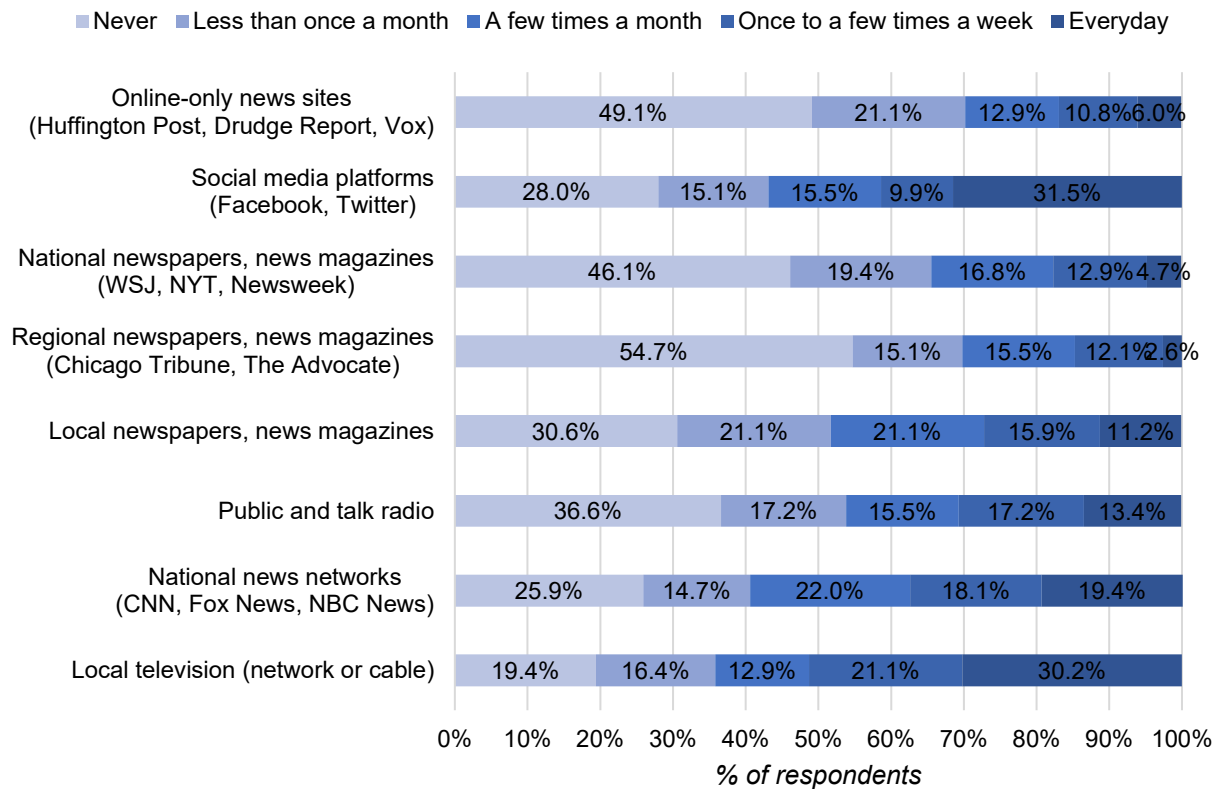
Table A7. Mississippi sample demographics (n=232).

Demographic	Frequency	Average
Age	18-24 years old	13.0%
	25-34 years old	18.2%
	35-44 years old	14.7%
	45-54 years old	19.0%
	55-64 years old	14.3%
	65 and older	20.8%
		M=46.3, SD=17.6 Median=47.0
Gender	Female	50.4%
	Male	48.7%
	Other/self-describe	0.9%
Race	White	55.6%
	Black	39.7%
	Latino or Hispanic	1.7%
	Asian	0.9%
	Native American, indigenous	0.4%
	Other	--
	Mixed race	1.7%
Education	Some high school	5.2%
	High school or GED	32.8%
	Some college	23.3%
	Two-year college, associate	12.5%
	Four-year college, bachelor's	12.9%
	Graduate, professional	13.4%
		M=3.4, SD=1.5 Median=3.0 (scale 1-6)
Income	Less than \$29,999	33.8%
	\$30,000 to \$49,999	23.4%
	\$50,000 to \$74,999	21.6%
	\$75,000 to \$99,999	12.6%
	\$100,000 to \$150,000	6.3%
	More than \$150,000	2.3%
		M=2.4, SD=1.4 Median=2.0 (scale 1-6)
Residence	Urban	21.1%
	Suburban	29.7%
	Rural	49.1%
Religious guidance	No guidance (0)	14.2%
	Low guidance (1-3)	9.1%
	Moderate guidance (4-6)	15.5%
	High guidance (7-9)	22.4%
	Complete guidance (10)	38.8%
		M=6.6, SD=3.7 Median=8.0 (scale 0-10)
Political ideology (social, economic issues)	Liberal	13.8%
	Liberal-leaning	15.1%
	Moderate	26.7%
	Conservative-leaning	21.6%
	Conservative	22.8%
		M=4.3, SD=1.7 Median=4.0 (scale 1-7)

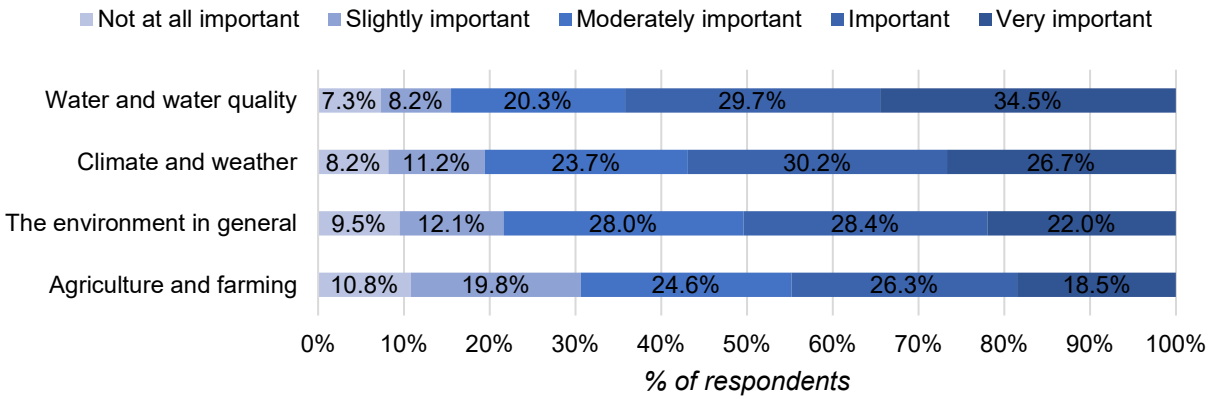
Attention to current affairs news (Mississippi)



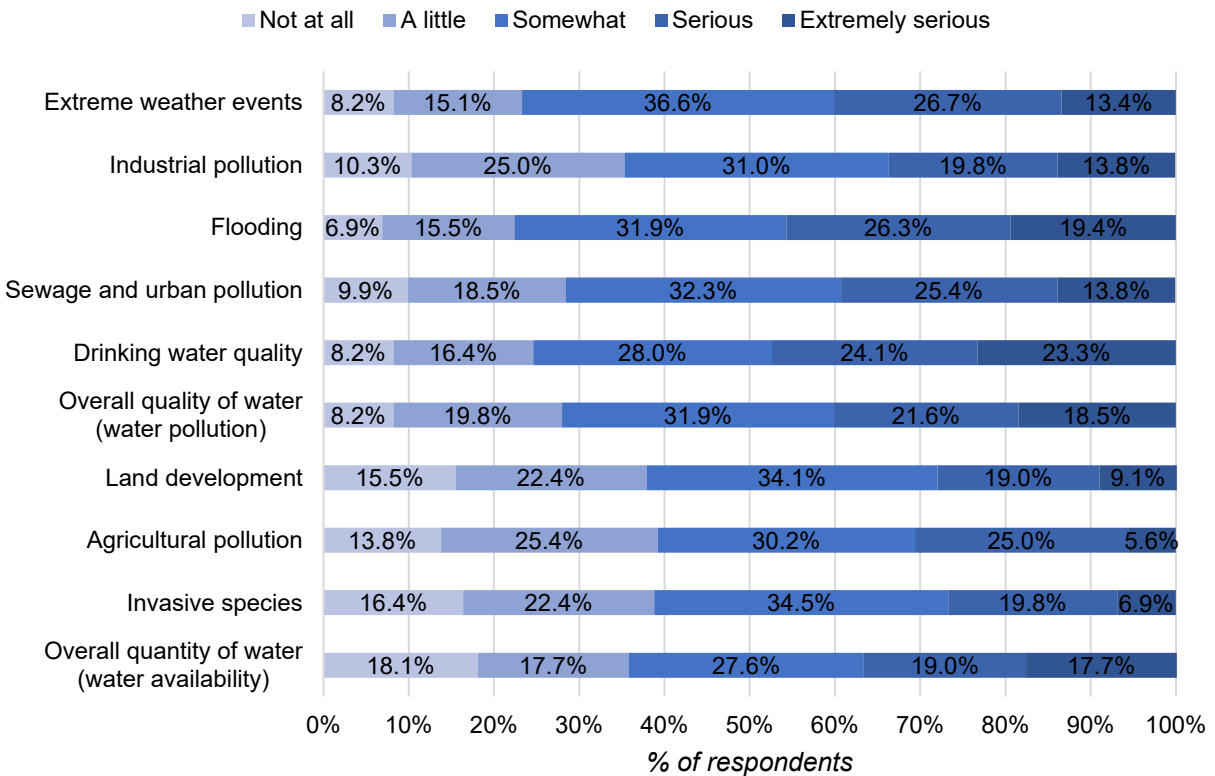
Media use for news about agriculture, the environment (Mississippi)



Importance of general environmental topics (Mississippi)



Seriousness of current problems in Mississippi

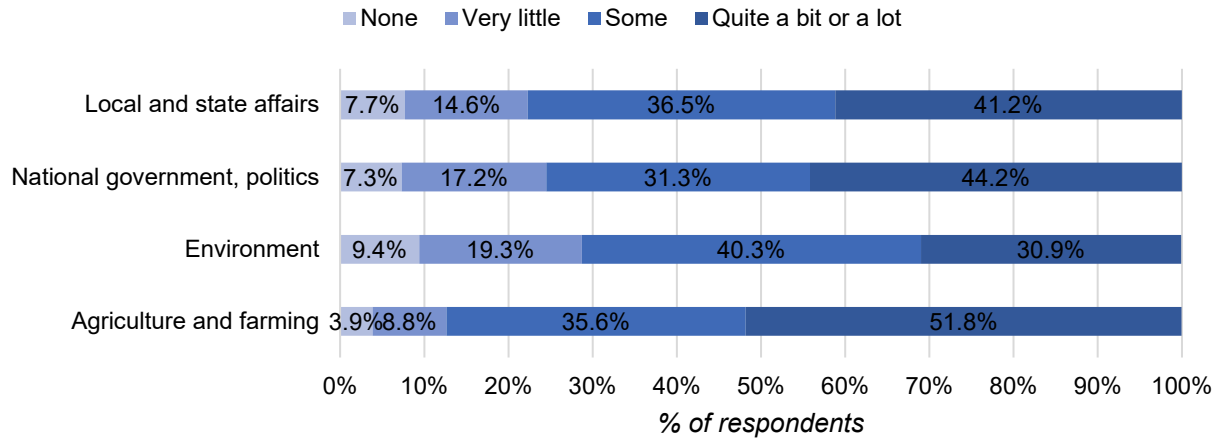


Appendix I: Missouri demographics and selected attitudes

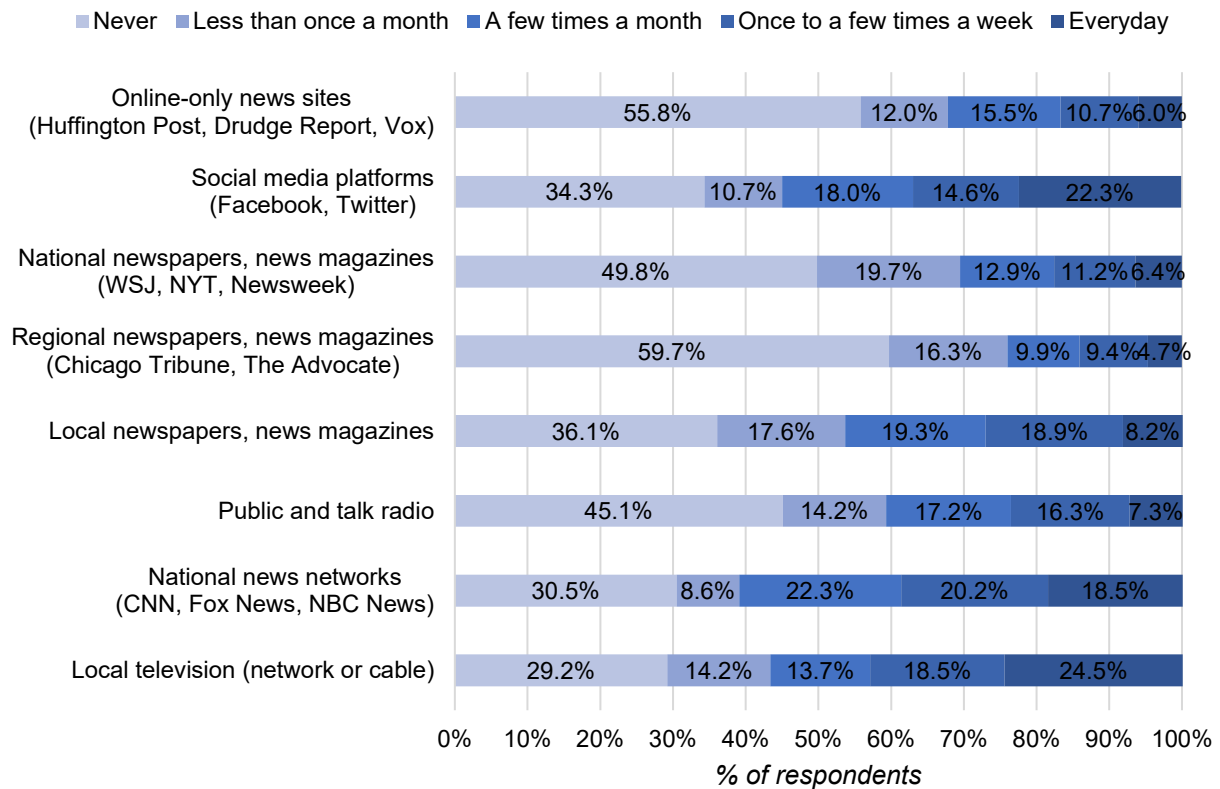
Table A8. Missouri sample demographics (n=233).

Demographic	Frequency		Average
Age	18-24 years old	13.7%	M=47.1, SD=17.2 Median=46.0
	25-34 years old	14.2%	
	35-44 years old	18.0%	
	45-54 years old	20.2%	
	55-64 years old	12.4%	
	65 and older	21.5%	
Gender	Female	49.8%	
	Male	47.2%	
	Other/self-describe	3.0%	
Race	White	79.4%	
	Black	10.7%	
	Latino or Hispanic	1.7%	
	Asian	2.1%	
	Native American, indigenous	0.4%	
	Other	0.4%	
	Mixed race	5.2%	
Education	Some high school	6.0%	M=3.2, SD=1.5 Median=3.0 (scale 1-6)
	High school or GED	39.5%	
	Some college	19.3%	
	Two-year college, associate	9.0%	
	Four-year college, bachelor's	15.9%	
	Graduate, professional	10.3%	
Income	Less than \$29,999	33.0%	M=2.6, SD=1.5 Median=2.0 (scale 1-6)
	\$30,000 to \$49,999	25.9%	
	\$50,000 to \$74,999	15.6%	
	\$75,000 to \$99,999	8.5%	
	\$100,000 to \$150,000	12.1%	
	More than \$150,000	4.9%	
Residence	Urban	25.8%	
	Suburban	39.5%	
	Rural	34.8%	
Religious guidance	No guidance (0)	25.3%	M=5.1, SD=3.8 Median=5.0 (scale 0-10)
	Low guidance (1-3)	7.7%	
	Moderate guidance (4-6)	27.9%	
	High guidance (7-9)	18.0%	
	Complete guidance (10)	21.0%	
Political ideology (social, economic issues)	Liberal	14.2%	M=4.2, SD=1.6 Median=4.0 (scale 1-7)
	Liberal-leaning	12.4%	
	Moderate	35.2%	
	Conservative-leaning	16.3%	
	Conservative	21.9%	

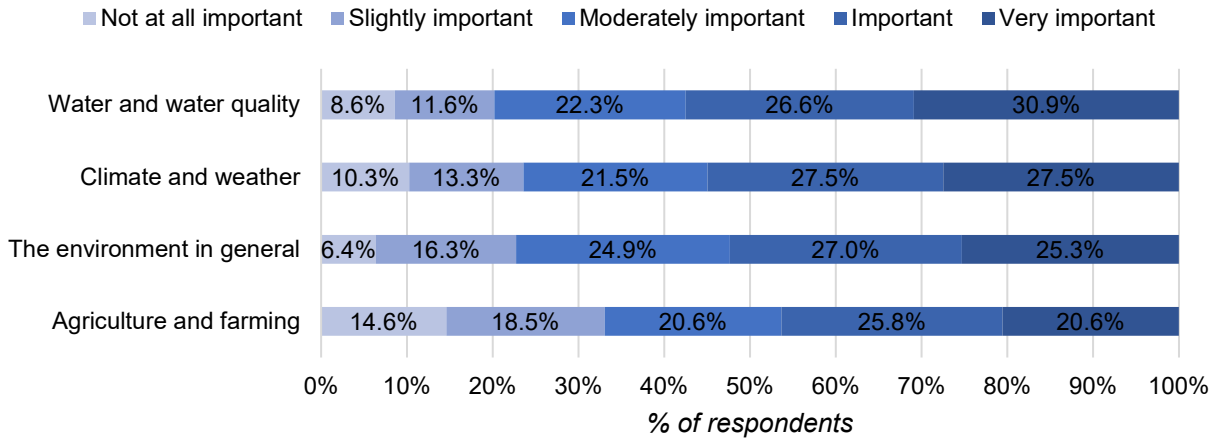
Attention to current affairs news (Missouri)



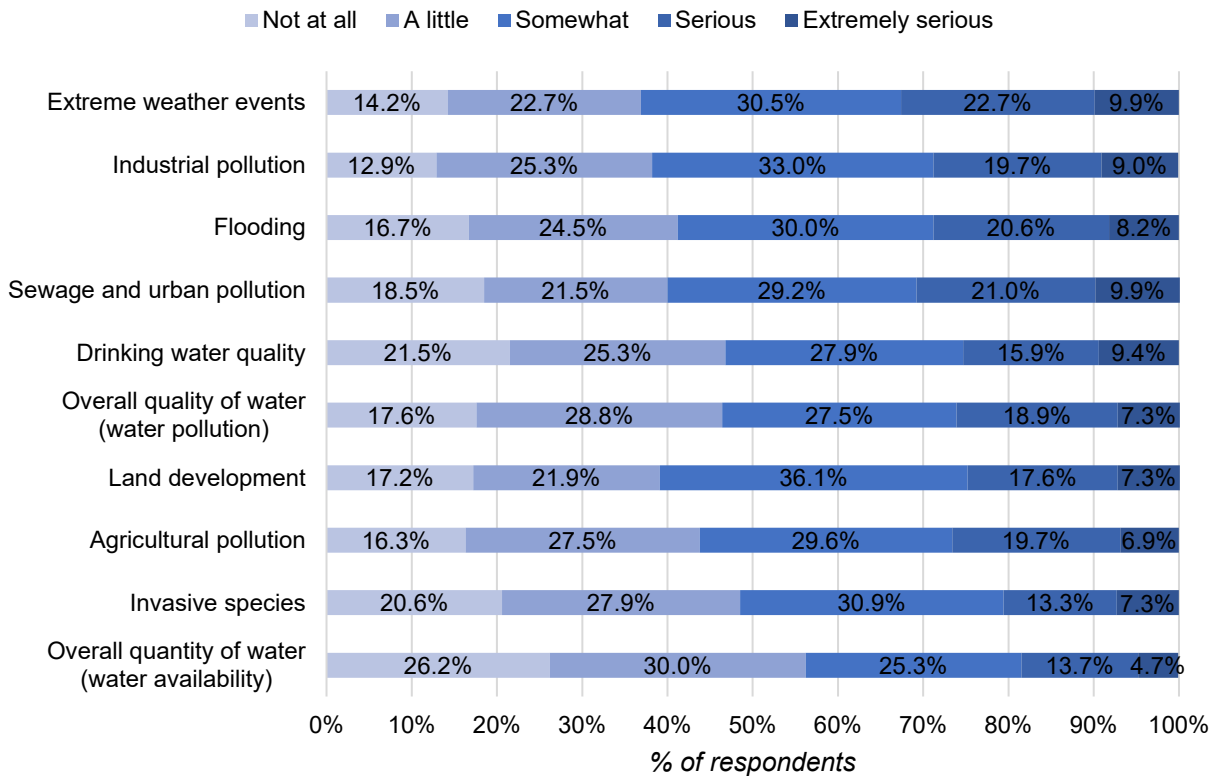
Media use for news about agriculture, the environment (Missouri)



Importance of general environmental topics (Missouri)



Seriousness of current problems in Missouri

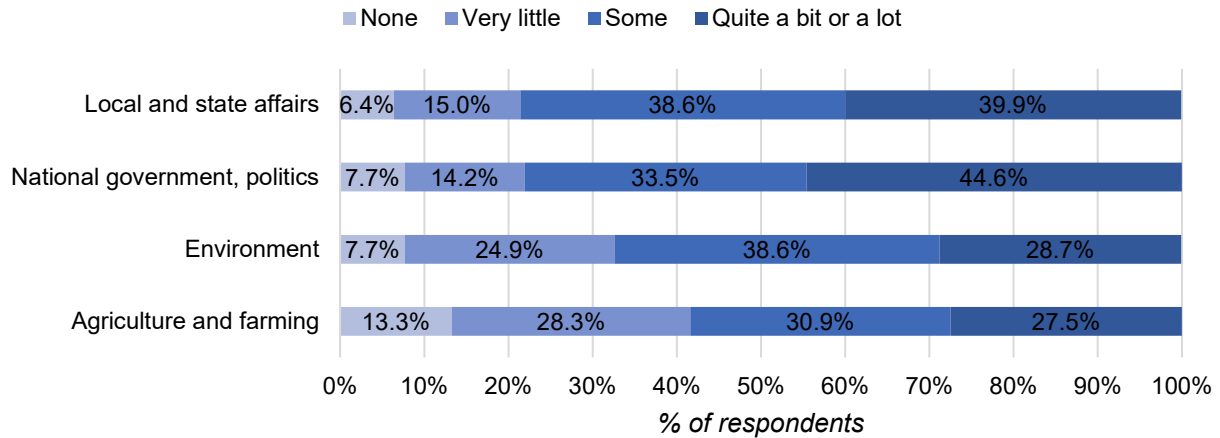


Appendix J: Tennessee demographics and selected attitudes

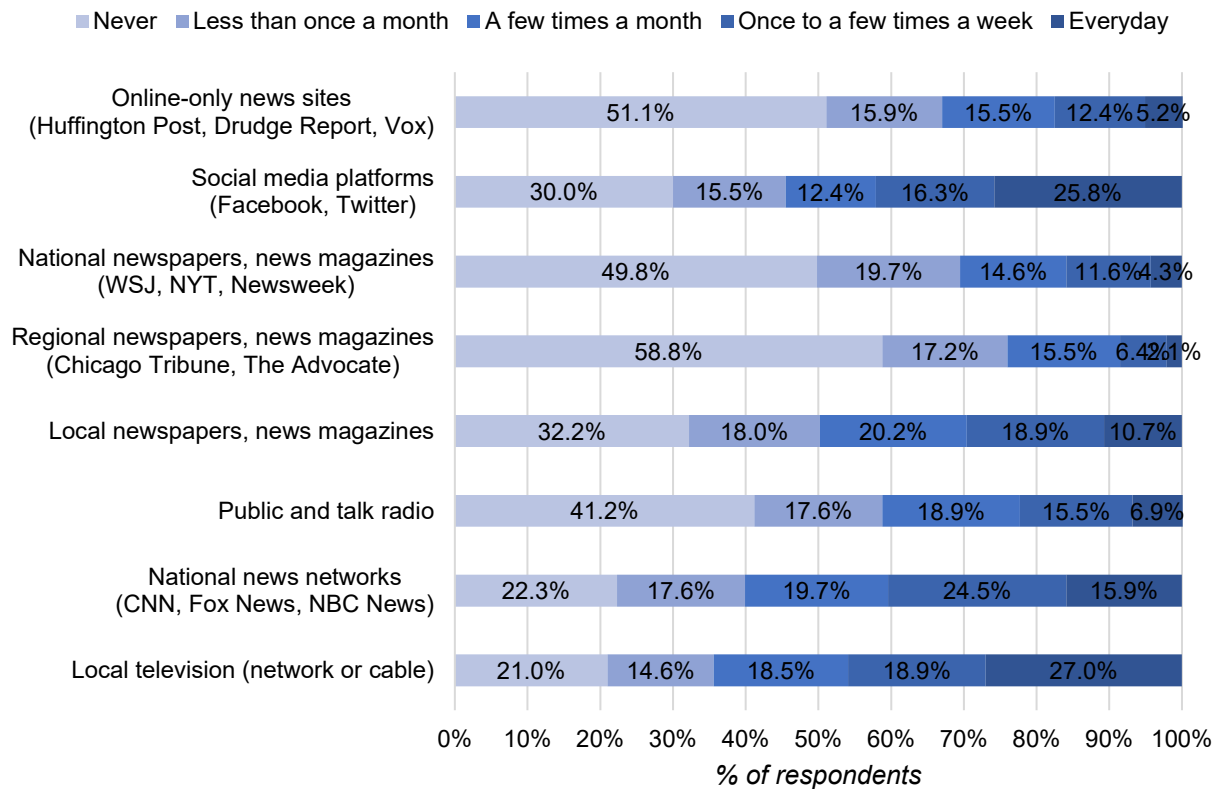
Table A9. Tennessee sample demographics (n=233).

Demographic	Frequency	Average
Age	18-24 years old	12.4%
	25-34 years old	16.3%
	35-44 years old	17.2%
	45-54 years old	15.9%
	55-64 years old	17.6%
	65 and older	20.6%
		M=47.2, SD=17.4 Median=47.0
Gender	Female	50.6%
	Male	48.1%
	Other/self-describe	1.3%
Race	White	73.0%
	Black	15.5%
	Latino or Hispanic	3.0%
	Asian	2.1%
	Native American, indigenous	0.9%
	Other	--
	Mixed race	5.6%
Education	Some high school	6.0%
	High school or GED	37.3%
	Some college	24.9%
	Two-year college, associate	8.2%
	Four-year college, bachelor's	17.6%
	Graduate, professional	6.0%
		M=3.1, SD=1.4 Median=3.0 (scale 1-6)
Income	Less than \$29,999	32.7%
	\$30,000 to \$49,999	27.4%
	\$50,000 to \$74,999	17.7%
	\$75,000 to \$99,999	13.7%
	\$100,000 to \$150,000	5.8%
	More than \$150,000	2.7%
		M=2.4, SD=1.4 Median=2.0 (scale 1-6)
Residence	Urban	20.2%
	Suburban	41.6%
	Rural	38.2%
Religious guidance	No guidance (0)	14.6%
	Low guidance (1-3)	8.6%
	Moderate guidance (4-6)	19.7%
	High guidance (7-9)	25.3%
	Complete guidance (10)	31.8%
		M=6.4, SD=3.6 Median=8.0 (scale 0-10)
Political ideology (social, economic issues)	Liberal	13.7%
	Liberal-leaning	11.2%
	Moderate	29.6%
	Conservative-leaning	19.3%
	Conservative	26.2%
		M=4.4, SD=1.7 Median=4.0 (scale 1-7)

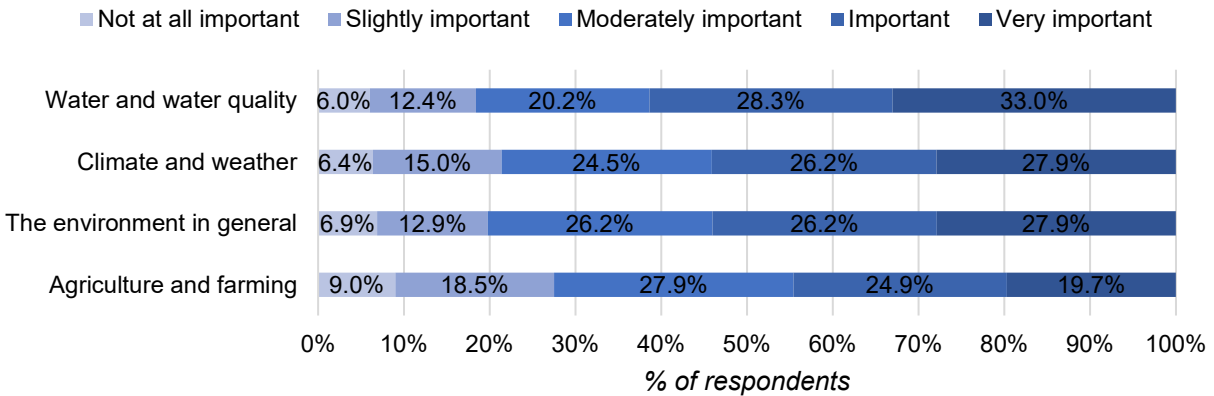
Attention to current affairs news (Tennessee)



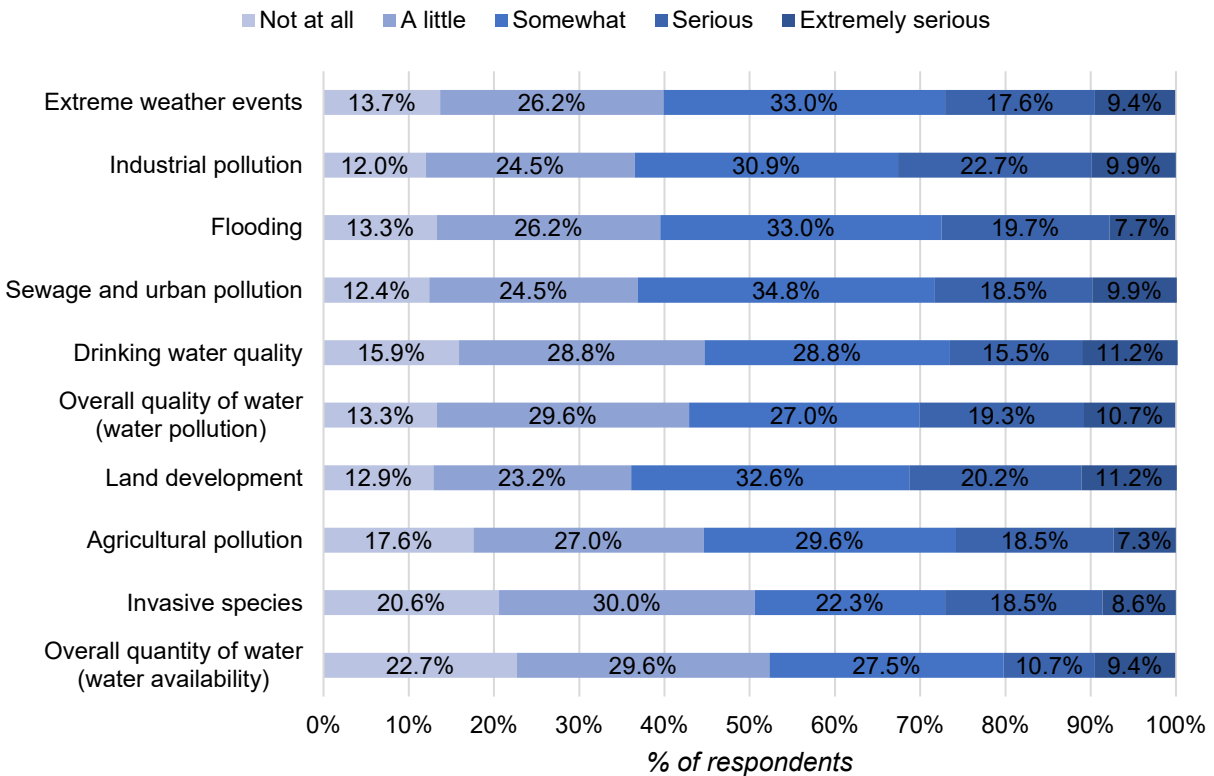
Media use for news about agriculture, the environment (Tennessee)



Importance of general environmental topics (Tennessee)



Seriousness of current problems in TN

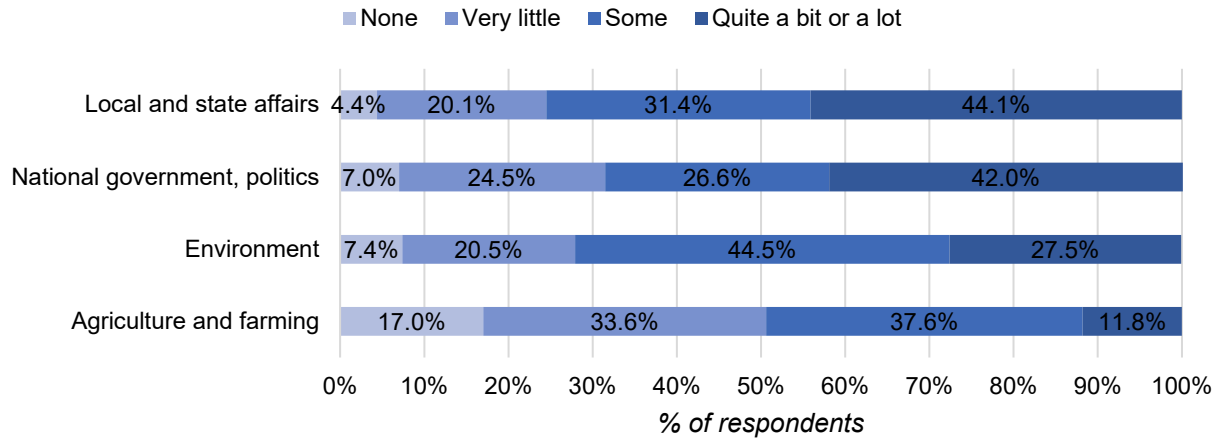


Appendix K: Wisconsin demographics and selected attitudes

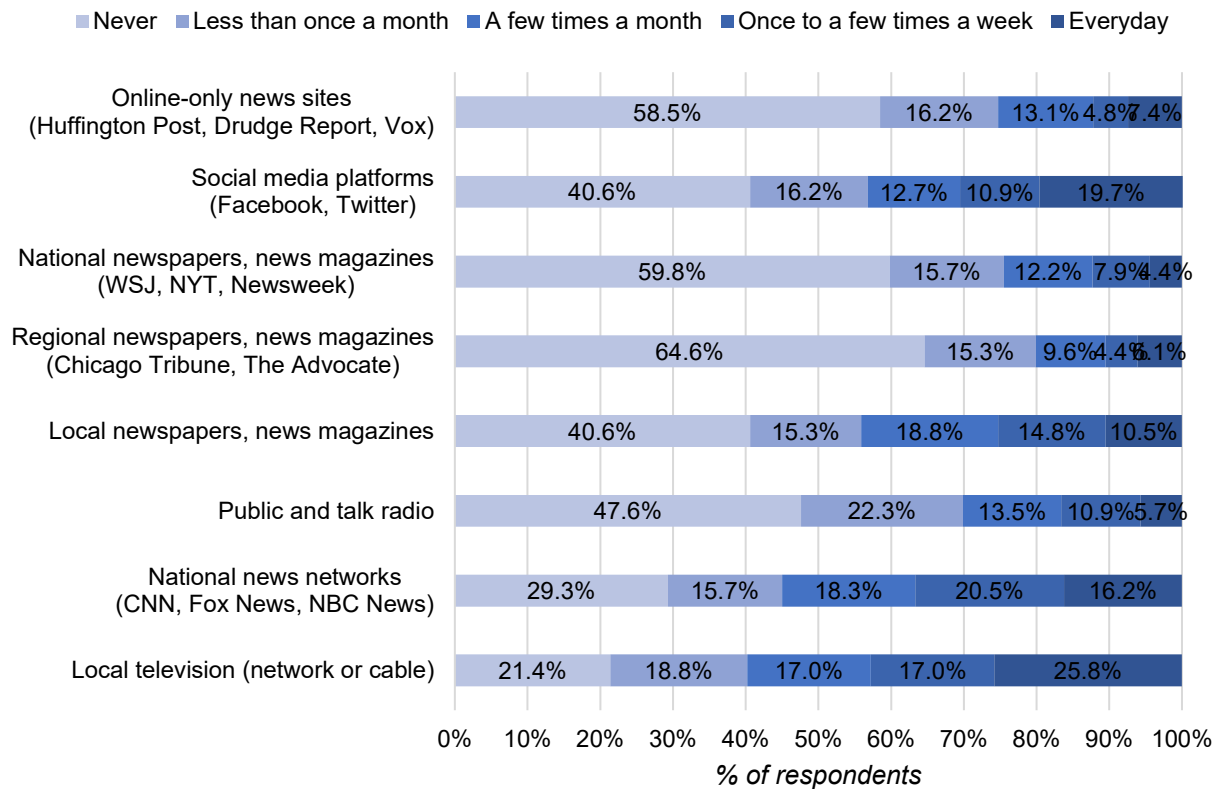
Table A10. Wisconsin sample demographics (n=229).

Demographic	Frequency	Average
Age	18-24 years old	13.1%
	25-34 years old	10.0%
	35-44 years old	21.8%
	45-54 years old	14.8%
	55-64 years old	18.8%
	65 and older	21.4%
Gender	Female	50.7%
	Male	48.0%
	Other/self-describe	1.3%
Race	White	81.2%
	Black	5.2%
	Latino or Hispanic	4.4%
	Asian	1.7%
	Native American, indigenous	0.4%
	Other	--
	Mixed race	7.0%
Education	Some high school	3.5%
	High school or GED	40.2%
	Some college	17.9%
	Two-year college, associate	11.8%
	Four-year college, bachelor's	19.7%
	Graduate, professional	7.0%
Income	Less than \$29,999	24.1%
	\$30,000 to \$49,999	29.5%
	\$50,000 to \$74,999	21.8%
	\$75,000 to \$99,999	12.3%
	\$100,000 to \$150,000	9.1%
	More than \$150,000	3.2%
Residence	Urban	24.5%
	Suburban	39.7%
	Rural	35.8%
Religious guidance	No guidance (0)	24.0%
	Low guidance (1-3)	16.2%
	Moderate guidance (4-6)	19.2%
	High guidance (7-9)	26.6%
	Complete guidance (10)	14.0%
Political ideology (social, economic issues)	Liberal	19.2%
	Liberal-leaning	15.7%
	Moderate	31.0%
	Conservative-leaning	15.7%
	Conservative	18.3%

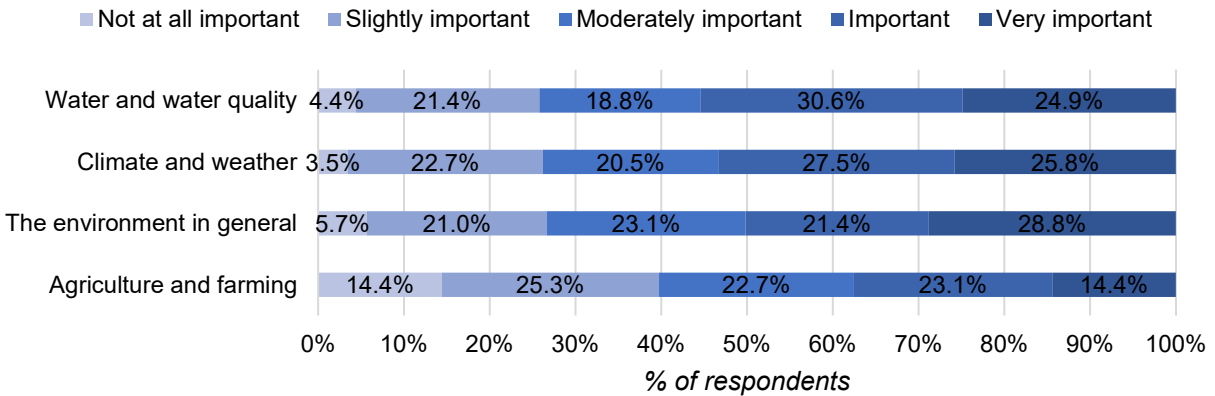
Attention to current affairs news (Wisconsin)



Media use for news about agriculture, the environment (Wisconsin)



Importance of general environmental topics (Wisconsin)



Seriousness of current problems in Wisconsin

