

WATER + US:

DETAILED SURVEY RESULTS ABOUT HOW WE
THINK, FEEL, AND TAKE ACTION ON WATER

May 13, 2020



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The Water Main: Connecting Americans to the value of water in our lives

The Water Main builds public will in support of clean, accessible, affordable water.

We do this as a social impact arm of American Public Media that harnesses the expertise and resources of APM – research, journalism, storytelling, convening, community engagement, and reach across an audience of over 20 million – to make a lasting difference in how Americans think, feel, and act on issues of water in their communities and across the country.

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SUMMARY

The Water Main is the first social impact initiative launched by American Public Media. Its mission is to build public will in support of clean, accessible, affordable water. The Water Main defines public will as “a willingness and an ability to take action”. Social science research on the topic is still emergent, but points to at least 3 critical ingredients in building public will: knowledge, connection, and concern.

This report presents the results of the first nationally representative survey designed to measure Americans’ knowledge, connection, concern, and action related to water issues facing the country.

This survey provides the first ever baseline measurement of these concepts among the American public. Overall, the survey results show that Americans have relatively high connection with- and concern for- water, but relatively low overall knowledge, and variable levels of action.

For example, 85% say that water plays a meaningful role in their lives, 82% are concerned about the future of America’s drinking water, but only half of American adults can identify the basic ecological functions of wetlands and only one quarter know that runoff is the major source of water pollution. In terms of action, while 81% say protecting water is important to their voting decisions only 22% have contributed either time or money to organizations that work to protect water resources.

Key findings: Knowledge

The American public’s general knowledge about water-related issues varies greatly from topic to topic. While 82% know that flooding is likely to increase in the near future, only 23% know that runoff is the largest source of water pollution. An overall Water Knowledge Scale made of 10 questions shows the American public averaging only 4.8 correct answers.

Most Americans are aware that we are likely to see an increase in demand for water and an increase in flooding in the foreseeable future; 82% and 68% correctly answered these questions, respectively.

- 72% of non-Hispanic Whites and 70% of non-Hispanic Blacks are aware that there is likely to be an increase in flooding over the next 20 years, compared with 56% of Latinos.
- 76% of Democrats are aware that flooding is likely to increase over the next 20 years, compared with 65% of independents and 62% of Republicans.

Roughly half of all Americans correctly answered questions related to water use in food production, infrastructure investments, the destination of water captured by storm drains, and the basic functions of wetlands. Additionally, 47% indicate that they know the original source of their tap water.

- Overall, 2 in 5 American adults wrongly think that, pound for pound, lettuce production requires more water than does the production of either almonds or beef.
- Overall, 2 in 5 American adults wrongly think that hazardous and solid waste infrastructure needs as much investment as either airports or water and wastewater.
- Half of all adults know that storm water typically drains to rivers, lakes, and wetlands.
- Half of American adults know that wetlands help filter water and prevent flooding.
 - 57% of Republicans correctly identify the basic ecological function of wetlands, compared with 50% of independents and 45% of Democrats.
- Just under half of all adults say they know the original source of the tap water in their homes.
 - Residents of non-metropolitan areas are more likely to know the source of their tap water than are those who live in metropolitan areas (59% compared with 45%).

Most American adults are unable to correctly answer questions about the number of Americans who struggle to afford water, the number of potential water-polluting chemicals regulated by the EPA, and the main source of water pollution—even when asked to choose from just three answers.

- About 15 million people get their water shut off each year because they cannot afford to pay their water bills. Only 30% of Americans know (or guess) that answer.
- 35% of Americans wrongly believe that the EPA regulates “just about all” possible chemical contaminants of water, while another 25% wrongly believes that the EPA regulates “about 3,000” chemicals. Only 23% of Americans know, or correctly guess, that the actual answer is the third option presented in the survey: “about 100.”
- According to EPA data, surface water runoff from streets, lawns, and farms is a far bigger source of water pollution than either garbage dumped from cities or waste from factories. Only 23% of Americans accurately chose surface water runoff from this list of three.

When the 10 basic questions are combined into a Water Knowledge Scale, the American public overall averages only 4.8 correct answers. Among those with a college degree or more education, the average is not much better, only 5.1.

Key findings: Connection

Virtually all American adults indicate some sort of connection to water.

85% of Americans say that water plays a very or extremely meaningful role in their life.

- 45% indicate that water plays an extremely meaningful role in their life.
- Regardless of gender, age, parental status, income, level of educational attainment, race, or where they live, the majority of Americans indicate that water plays an extremely or very meaningful role in their lives.
- The response patterns are very similar among self-identified Republicans, Democrats, and independents.

46% of Americans indicate that they feel a personal connection with a specific lake, river, or ocean.

- A significantly higher proportion of older adults feel a personal connection with a body of water (56% of those over age 64, compared with about 40% of adults under age 45).
- African Americans are less likely to feel connected to a body of water than are Whites.
- As compared to other adults, those who are parents of minor children who live with them are less likely to feel connected with a body of water.

62% indicate that they spend free time in or around bodies of water at least once per month during the warmer months of the year.

- 1 in 7 adults say they spend free time “in or around bodies of water including lakes, rivers, or the ocean” several times per week.
- 1 in 7 adults say they never spend free time recreating near water.
- Half of those age 65 or older say they spend free time near water less than once per month or “never,” compared with only about one-third of adults younger than age 65.
- About one-quarter of adults from households with annual incomes under \$25,000 and those with a high school education or less say that they “never” spend time near water; twice the rate of their higher income and more highly educated counterparts.

95% of Americans think it is important for children in the U.S. to learn about protecting water resources.

- 67% of adults think it is “very important” for children to learn how to protect water resources.
 - A somewhat higher proportion of women than men feel it is “very important” for children to learn how to protect water resources (71% compared to 63%).
 - Parents who live with a minor-aged child are similarly more likely to think that learning about water is very important than is the case for others.

- Adults from households making less than \$25,000 annually and those with only a high school diploma (or less education) are more likely to emphasize the importance of learning about water protection.
 - Three-fourths of Democrats and independents indicate that learning about water protection is very important, compared with one-half of Republicans.
- 72% think it is very important for children to learn how the U.S. economy works.
 - 76% think it is very important for children to learn about mental health.
 - 79% think it is very important for children to learn how to identify false information on the internet.

65% of Americans indicate at least some interest in learning more about water-related issues.

- A higher proportion of those with less formal education (high school diploma or less) are “very interested” in learning more about water related issues than are those with higher levels of education.
- Higher proportions of those with lower incomes say they are “very interested” in learning more about water, as are Latinos and those identifying politically as either Democrats or independents.

On a Water Connection Scale combining answers to all 5 questions, Americans score an average of 12.9 out of 20 points (65%).

Key findings: Concern

Overall, American adults indicate a fair amount of concern over water-related issues, both in terms of immediate concerns like affordability and drinking water safety to worries about the future of the nation’s water resources.

82% are concerned about the future of America’s drinking water infrastructure, including the 45% who are “very concerned.”

- Younger adults—those with the longest future ahead of them—indicate somewhat less concern than do older age groups; 27% of those age 18-34 indicate they are “not too” or “not at all” concerned about the future of America’s drinking water infrastructure, compared to less than 15% of all age groups 35 and older.
- 58% of Democrats are “very concerned” about the future of America’s drinking water infrastructure, compared with 42% of independents, and 33% of Republicans.

84% are concerned about the future of America’s water resources, including the 42% who are “very concerned.”

- Younger adults indicate somewhat less concern than do older age groups; 22% of those age 18-34 indicate they are “not too” or “not at all” concerned about the future of America’s water resources, compared to 13% or less of all age groups 35 and older.
- 23% of those who have completed college indicate they are “not too” or “not at all” concerned about the future of America’s water resources, compared with half as many (11%) of those whose highest level of education is some college.
- 53% of Democrats are “very concerned” about the future of America’s water resources, compared with 42% of independents, and 32% of Republicans.

55% worry about the safety of drinking water from their tap at home, including 30% who worry about it “a great deal.”

- Low-income households are particularly concerned about the safety of their tap water; 68% of those from households with annual incomes below \$25,000 indicate that they worry about it, including the 41% who worry about their home drinking water safety “a great deal.”
- Two-thirds of Black and Latino adults worry about the safety of drinking water from their taps, compared with just over half of Whites.
- One-third of those below age 45 worry “a great deal” about the safety of their tap water, compared to one-quarter of those age 55 or older.
- Democrats are somewhat more worried about the safety of their home drinking water than are Republicans; 59% compared to 51%.

49% say there is too little governmental regulation protecting water; 9% say there is too much regulation.

- 62% of African Americans indicate there is “too little” governmental regulation protecting water, compared with 48% of Whites.
- Those living in western states are twice as likely as those in north eastern and north central states to indicate that there is “too much” governmental regulation protecting water (13% compared to 6%).
- While a higher proportion of Democrats than Republicans indicate that there is “too little” government regulation, it is notable that only 13% of Republicans indicate that there is “too much” government regulation to protect water.

24% of American adults are worried that they may not be able to afford their water bill.

- Half of those from households with annual incomes under \$25,000 are worried about their ability to pay their water bills over the next two years, as are one-third of those from households with annual incomes between \$25,000 and \$50,000.

- 45% of Latinos are worried about affording their water bills, compared with 19% of Whites.
- 33% of those adults with a high school diploma or less education are worried about their water bills, compared with 16% of those who have completed their college degrees or more education.

On a Water Concern Scale combining answers to all 5 questions, Americans score an average of 12.3 out of 20 points (65%).

Key findings: Action

Strong majorities of American adults indicate that they are taking action to conserve water in their daily lives, and that water protection is important to their voting decisions. However, most are not regularly sharing water-related information with others or contributing time or money to organizations that take care of water.

38% of adults share water-related information with others at least once a month.

- Younger adults (18-44) are more likely to share information at least monthly than those age 55 or older (44% compared with 32%).
- 44% of those living in the western states share water-related information with others at least monthly, compared with 34% of those living in southern states.¹

22% of adults report that they have contributed money or volunteered time to an organization which works on taking care of water resources.

- Parents raising children with them are somewhat less likely to have contributed time and money to water-related organizations than are other adults (16% compared with 24%).
- About half as many Latinos have contributed time or money to water-related organizations than is the case among non-Hispanic Whites and non-Hispanic Blacks (12% compared with 24% and 25%).
- More than 1 in 4 of those from households with annual incomes of \$50,000 or higher report contributing time or money, compared with less than 1 in 5 of those from households with incomes below \$50,000.

47% of adults indicate that, when deciding who to vote for, it is “very important” that a candidate says that taking care of water is a priority for them.

- 81% of adults indicate that the protection of water is important to their vote, either “somewhat” (34%) or “very important” (47%).

¹ See appendix for regional definitions.

- Two-thirds of those from households with annual incomes below \$25,000 indicate that water protection is “very important” to their vote, compared with less than half of all others.
- Over half of Latinos, women, those with a high school degree or less education, and those from western states indicate that water protection is very important to their voting decisions.
- Water protection is “very important” to the voting choices of 32% of Republicans, 48% of independents, and 54% of Democrats.

72% of American adults try to do things that conserve water or protect water from pollution in their daily lives.

- 81% of those age 65 or older work to conserve or protect water in their daily lives, the highest of all age groups.
- 81% of those living in western states conserve or protect water in their daily lives, compared with about 70% of those in other states.²
- In response to the question, “what is the most meaningful thing you do in your day-to-day life to save or protect water?” the most common answer is limiting water use (36%), followed by avoiding polluting or cleaning up trash (16%), and reducing specific household uses of water while doing things like showering or doing dishes (16%).

Out of a possible 16 points on the Water Action Scale that combines answers from the four questions noted above, the overall average score is 8.1 points, or 51% of the total possible.

- Regionally, those from western states tended to score higher than those from other states, averaging 8.8 compared with 7.7 to 8.0 in other regions.
- Republicans and Democrats score similarly on the Water Action Scale, averaging 8.1 and 8.4, respectively. Overall, independents average 7.8, suggesting that, on average, independents are least likely to take action on water-related issues.

Key Findings about the relationship between Knowledge, Connection, Concern, and Action

A correlation analysis between the four scales used to summarize findings in each of the four areas shows the strongest relationship between the Water Connection and Water Action scales, and moderate relationships between both the Water Concern and Water Knowledge scales and the Action scale. The Concern and Connection scales are also moderately correlated to one another, as are the Knowledge and Connection scales. The relationship between the Knowledge and Concern scales is the weakest among these correlations.

² See appendix for regional definitions.

INTRODUCTION

The Water Main is the first social impact initiative launched by American Public Media. Its mission is to build public will in support of clean, accessible, affordable water. The Water Main defines public will as “a willingness and an ability to take action.” Social science research on the topic is still emergent, but points to at least 3 critical ingredients in building public will: knowledge, connection, and concern.

The Water Main measures its progress on building public will by measuring the increase in knowledge, connection, concern, and reported action associated with each project it undertakes. This report, then, together with earlier qualitative research on how Americans connect to the topic of water, serves as important baseline data for the initiative. The APM Research Lab and the Water Main also believe that the findings provide important new insights for any organization or individual working to communicate and engage members of the public on water topics.

This report presents the results of the first nationally representative survey designed to measure Americans’ knowledge, connection, concern, and action related to water issues facing the country by asking a series of short questions related to each attribute. Questions were derived from consultation with stakeholders representing a spectrum of water subject matter expertise and geographical diversity, in conjunction with literature searches and qualitative that we undertook to better understand how Americans connect with Water.³

This survey provides the first ever national baseline measurement of these concepts among the American public, by asking a set of questions related to each. In addition to the overall responses to each question, we summarize the relevant questions to form a scale for each concept. We also analyze the results from each question (and scale) by a set of social and economic variables that allow us to see whether these characteristics are somehow related to the concept at hand. For example: Do respondents living in the northeastern states tend to have higher or lower levels of knowledge about water-related issues?

The standard characteristics used in the analysis are shown in greater detail in this report’s appendix and include gender, age, parental status, race and ethnicity, educational attainment, household income, geographic region, metropolitan status, and political affiliation. Throughout the report, we highlight statistically significant differences among the groups represented by each characteristic (e.g., older respondents compared to younger ones).

This nationally representative survey of 1,005 adult Americans was conducted via landline (40%) and cellphone (60%) by SSRS, May 7-12, 2019. As noted in the transparency disclosure and methods addendum that accompanies this report, the survey was conducted using live

³ How Americans Relate to Water, by APM Research Lab and Wilder Research, on behalf of the Water Main, November 13, 2018 (<https://www.apmresearchlab.org/water>).

interviewers, who conducted interviews in both English and Spanish. The survey's overall margin of error is +/- 3.62 percentage points at the 95% confidence level.⁴

The survey continues earlier qualitative research that unearthed the many ways that Americans relate to water.⁵

⁴ For survey transparency disclosure and methods, please see <https://www.apmresearchlab.org/water-and-us>.

⁵ "How Americans Relate to Water: A Qualitative Study for the Water Main" by the APM Research Lab and Wilder Research, November 13, 2018 (<https://www.apmresearchlab.org/water>).

KNOWLEDGE

To assess the American public's knowledge about water, we worked with the Water Main to write 10 questions that had clear, factual answers and covered a range of water-related topics.

Water knowledge questions

Please tell me whether or not you think it is likely that each of the following will happen over the next 20 years in the U.S.

Water demand: An increase in demand for water: Yes, likely*; or No, not likely?

Flooding: An increase in flooding: Yes, likely*; or No, not likely?

Food production: Which of the following foods requires the most water to produce: One pound of almonds*; One pound of beef*; or One pound of lettuce?

Infrastructure funding gap: As far as you know, which of the following areas of infrastructure needs the most investment: Water and wastewater*; Airports*; or Hazardous and solid waste?

Storm water: In most U.S. towns, when it rains, where does most of the water that goes into storm drains end up: Water treatment plants; Rivers, lakes, and wetlands*; or Into the ground?

Wetlands: Which one of the following statements is true about wetlands, such as swamps or marshes? They are a renewable source of electricity; They help filter water and prevent flooding*; or They pollute nearby lakes and rivers.

Tap water source: Do you happen to know the original source of the tap water in your home, such as a river, reservoir, or underground aquifer? Yes; No.

Affordability: How many Americans get their water shut off each year because they cannot afford to pay their water bills? Is it closest to... one million people; 15 million people*; or 45 million people?

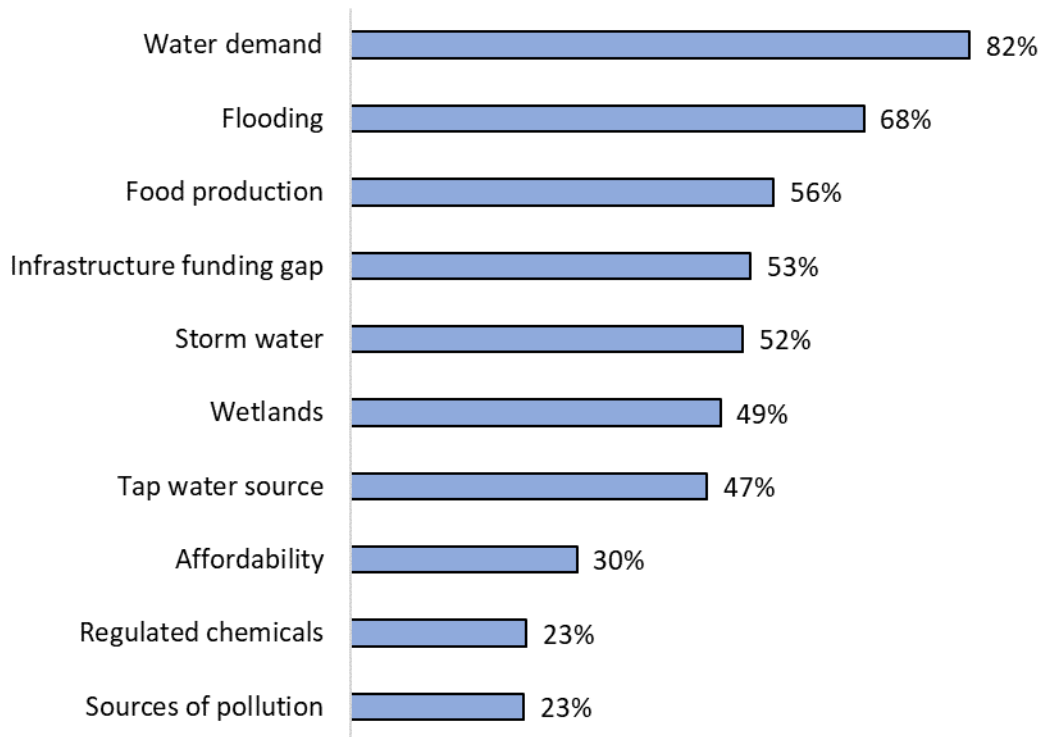
Regulated chemicals: Thinking about the thousands of chemicals that could contaminate drinking water, about how many are regulated by the United States Environmental Protection Agency: About 100*; About 3,000; or Just about all of them?

Sources of pollution: Which of these is the largest source of pollution of rivers, lakes, and oceans: Surface water running off from streets, lawns, and farms*; Waste from factories; or Garbage dumped from cities?

* Denotes correct answer(s).

The American public’s general knowledge about water-related issues varies greatly from topic to topic. The proportion of Americans who correctly answered questions ranged from a high of 82% who know that flooding is likely increase in the near future to a low of 23% who know that runoff is the largest source of water pollution or the number of pollutants the EPA regulates.

Figure I.1:
Proportion answering correctly to each water knowledge question



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.

In addition to projected growth in water demand, most Americans know that flooding is likely to become more common. Around half of Americans can accurately answer the questions we posed about what types of food require the most water to produce, what type of infrastructure needs the most investment, what happens to water collected in storm drains and what function wetlands serve. Additionally, nearly half indicate that they know the source of the tap water in their homes.

Only 30% correctly identify how many of their fellow Americans struggle to afford their water bills. Since there were only three possible choices, this is slightly worse than guessing at random. As a whole, the American public does even worse on questions about chemicals regulated by the U.S. Environmental Protection Agency and about the biggest source of water pollution: less than one quarter chose the correct answer for each of those questions.

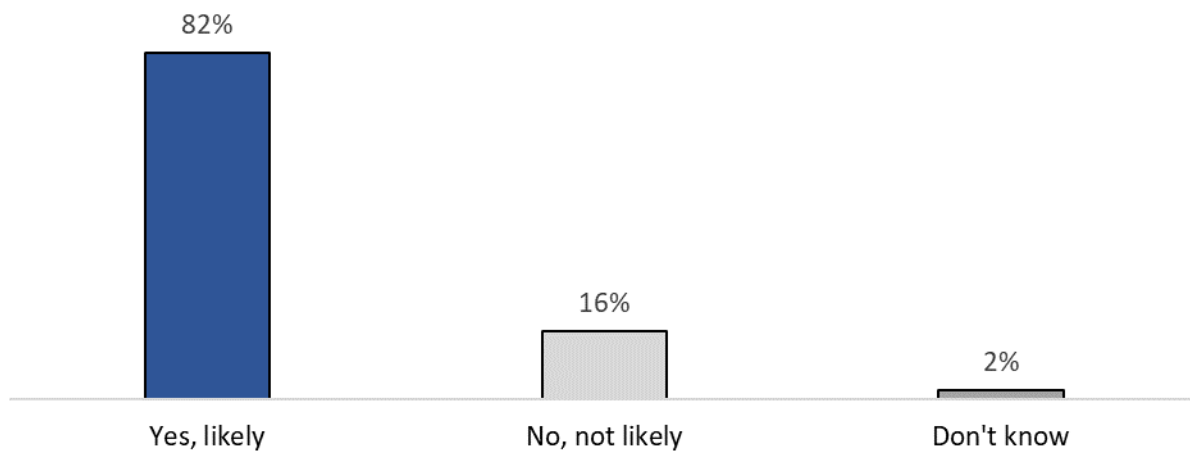
Water demand

U.S. demand for water is expected to grow in coming years. A recent study by Tomas Brown, Vinod Mahat, and Jorge Ramirez estimates that “total withdrawal” of water in the U.S. will increase by 8% by 2060 if the climate remains stable. However, that estimate jumps to 16% and 32% once climate change is included in their models.⁶

An overwhelming majority of American adults correctly say that the demand for water is likely to increase over the next 20 years: Four out of five American adults say that water demand will increase, while less than 1 in 5 indicated that water demand is not likely to increase.

There are no significant differences in the answer patterns of demographic groups that we are able to test in response to this question on the survey. Regardless of gender, age, parental status, income, level of educational attainment, race, or where people live, the majority of Americans indicate that demand for water is likely to increase in coming years. Additionally, the response patterns are very similar among self-identified Republicans, Democrats, and independents.

Figure 1.2:
4 out of 5 American adults correctly think that water demand will likely increase in the U.S. over the next 20 years



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019. Question: “Please tell me whether or not you think it is likely that each of the following will happen over the next 20 years in the U.S.: An increase in demand for water.”

Note: Correct answer is “Yes, likely.”

⁶ Brown, T. C., Mahat, V., & Ramirez, J.A. (2019). Adaptation to future water shortages in the United States caused by population growth and climate change. *Earth's Future*, 7, 226 (<https://doi.org/10.1029/2018EF001091>, accessed July 24, 2019). Note that the National Climate Assessment, produced in 2017 by a the cross-agency federal U.S. Global Change Research Program, cited as authoritative earlier projections by Brown, et. al., showing similar projected increases in demand.

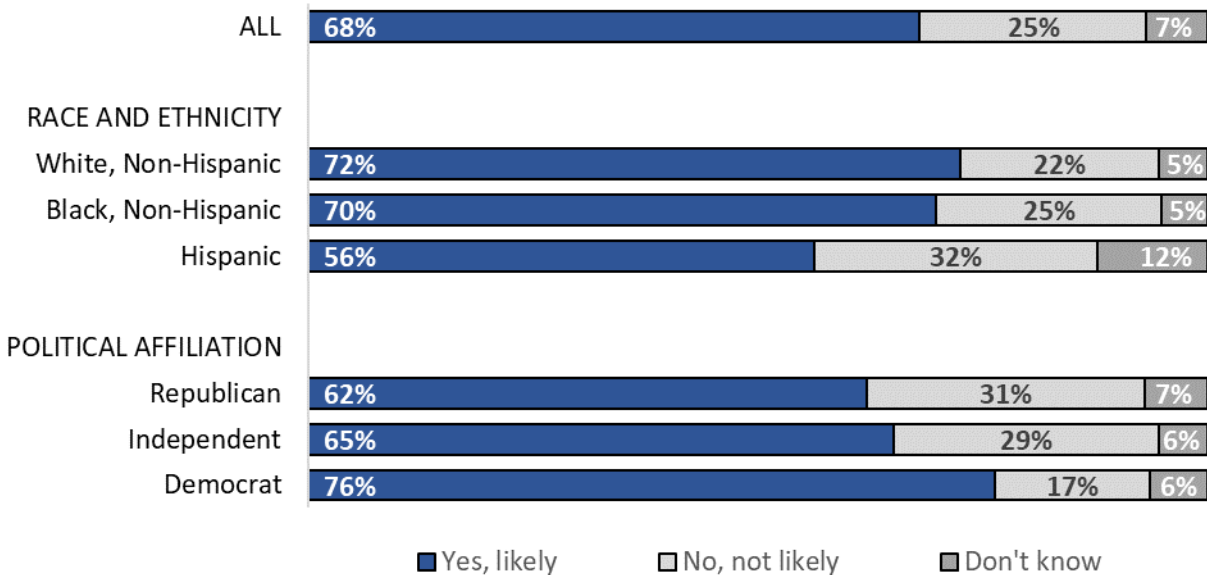
Flooding

According to the Fourth National Climate Assessment, “Extreme precipitation, one of the controlling factors in flood statistics, is observed to have generally increased and is projected to continue to do so across the United States in a warming atmosphere.”⁷

Overall, 68% of American adults are aware that flooding is likely to become more common in coming decades. A higher percentage of non-Hispanic Whites are aware of this fact than are Latinos (72% compared to 56%), as are Democrats as compared to either independents or Republicans (76% compared to 65% and 62%, respectively).

Otherwise, there are no significant differences in the answer patterns for this question among demographic groups, including gender, age, parental status, income, level of educational attainment, or where people live.

Figure I.3:
Two-thirds of American adults are aware that flooding is likely to increase over the next 20 years, including about three-fourths of Whites and Democrats



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019. Question: “Please tell me whether or not you think it is likely that each of the following will happen over the next 20 years in the U.S.: An increase in flooding.”

Note: Correct answer is “Yes, likely.” Percentages may not sum to 100 due to rounding and since “refused” responses (<1% of responses overall) are not shown.

⁷ U.S. Global Change Research Program (2017), Fourth National Climate Assessment (<https://science2017.globalchange.gov/chapter/8/>, finding 5, accessed July 25, 2019). Note that the USGCRP is a cross-agency federal program mandated by Congress to coordinate Federal research and investments in understanding the forces shaping the global environment, both human and natural, and their impacts on society.

Food production

Food production is a major use of water, but the amount of water used to produce food differs greatly depending on the specific source of food. To assess Americans' knowledge of these differences, we asked respondents to identify which of three food sources required more water in its production: almonds, beef, or lettuce.

According to scientists Mesfin Mekonnen and Arjen Hoekstra, almonds and beef require similar amounts of water to produce, at least if the almonds are sold in a shelled format. Lettuce production requires far less water to produce. Due to the relative similarity in water consumption between almonds and beef, we considered both answers to be accurate.

Figure I.4:
Amount of water used in the production of almonds, beef, and lettuce

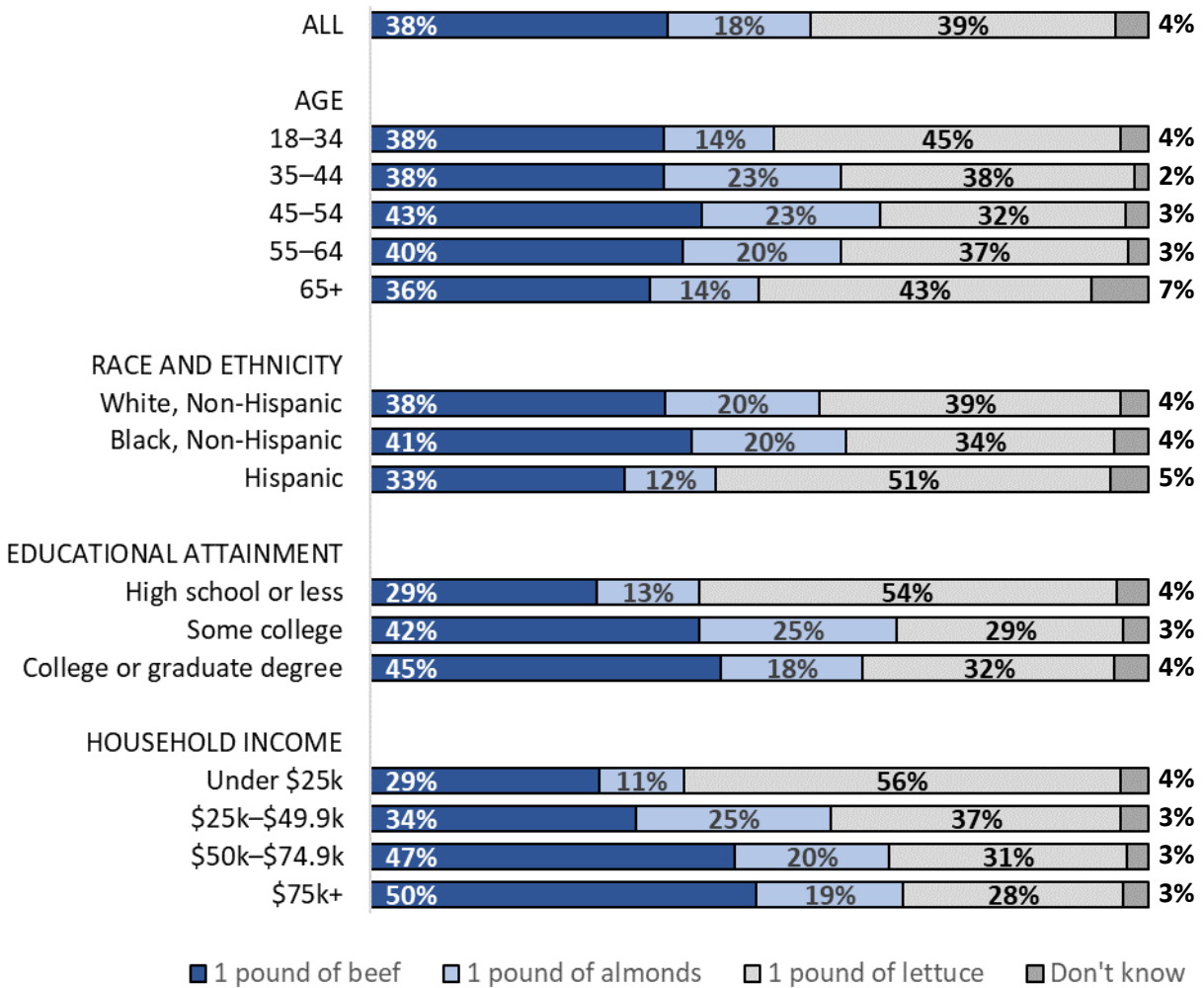
	Cubic meters of water per ton of food produced
Almonds, with shell ^a	8,047
Almonds, shelled ^a	16,095
Beef ^b	15,415
Lettuce ^a	237

Sources: ^(a) Mekonnen, M.M. and Hoekstra, A.Y. (2011) *The green, blue and grey water footprint of crops and derived crop products*, *Hydrology and Earth System Sciences*, 15(5): 1577-1600. ^(b) Mekonnen, M.M. and Hoekstra, A.Y. (2012) *A global assessment of the water footprint of farm animal products*, *Ecosystems*, 15(3): 401-415.

Overall, two out of every five American adults wrongly thinks that lettuce production requires more water than the production of either almonds or beef. By age, those in the youngest and oldest age groups are least likely to answer this question correctly. White and Black adults are more likely to answer correctly than are Latinos.

Over half of those with a high school diploma or less think that, pound for pound, lettuce production requires more water than production of either almonds or beef. Similarly, over half of those from the lowest income households got this question wrong.

Figure I.5:
Americans' knowledge of which foods require most water varies somewhat by age, race and ethnicity, educational attainment, and income



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
 Question: "Which of the following foods requires the most water to produce: 1 pound of almonds; 1 pound of beef; or 1 pound of lettuce?"

Note: Both almonds and beef are counted as correct answers. Percentages may not sum to 100 due to rounding.

Infrastructure funding gap

To help assess Americans' knowledge of water-related infrastructure, we asked, "As far as you know, which of the following areas of infrastructure needs the most investment: Water and wastewater; Airports; or Hazardous and solid waste?"

The American Society of Civil Engineers' most recent annual Infrastructure Report Card indicates that the nation's water and wastewater systems need significantly more funding than either airports or hazardous and solid waste facilities. The organization estimates that water and wastewater infrastructure currently need an investment of \$150 billion but are only receiving \$45 billion in funding, leaving a shortage of \$105 billion. Airports, by comparison, require \$157 billion in funding but are receiving \$115 billion, leaving a need of \$42 billion. Hazardous and solid waste facilities together need a total of about \$7 billion and have \$4 billion in funding leaving an estimated need of \$3 billion.⁸

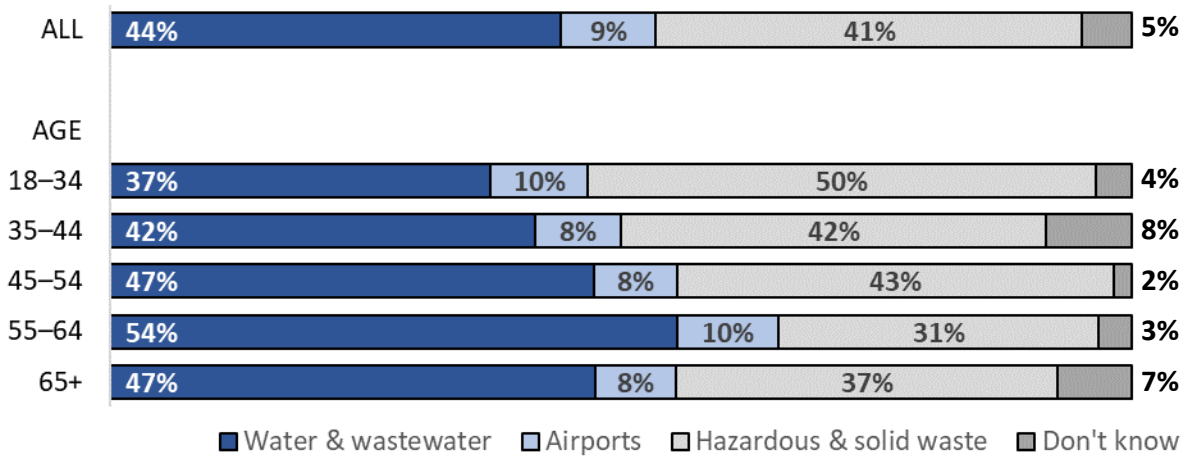
While water and wastewater have the largest unmet investment needs, we counted both "airports" and "water and wastewater" as correct answers since both have similar overall needs. Using these criteria, just over half of all adults answered the question correctly, with 44% indicating that water and wastewater needs the most investment, and another 9% indicating "airports." Most of those who answered this question incorrectly indicated that hazardous and solid waste needs the most investment.

While there is little variation in answer patterns along demographic or economic lines, there is some variation by age: Nearly two-thirds of those age 55 to 64 correctly identified the types of infrastructure that need the most investment, compared with less than half of those age 18 to 44.

Otherwise, there are no significant differences in the answer patterns for this question among demographic groups including gender, parental status, income, level of educational attainment, where people live, or political affiliation.

⁸ 2017 Infrastructure Report Card, <https://www.infrastructurereportcard.org/cat-item/wastewater/>, accessed July 18, 2019).

Figure I.6:
2 in 5 Americans wrongly think that hazardous and solid waste infrastructure needs as much investment as either water and wastewater or airports



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
 Question: "As far as you know, which of the following areas of infrastructure needs the most investment?"
 Note: Both "water& wastewater" and "airports" are considered correct. Percentages may not sum to 100 due to rounding and since "refused" responses (<1% of responses overall) are not shown.

Storm water

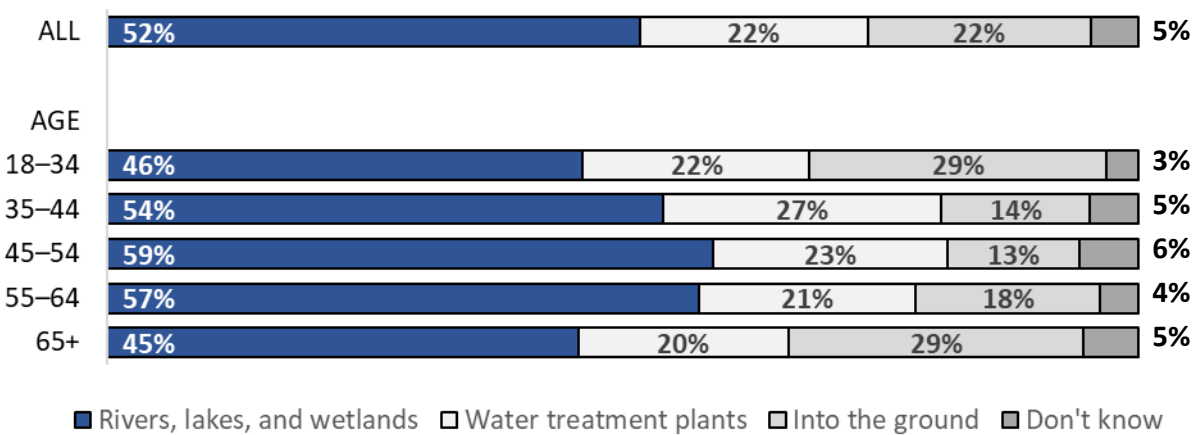
To assess Americans' knowledge of where storm water goes, the survey included the question, "In most U.S. towns, when it rains, where does most of the water that goes into storm drains end up: Water treatment plants; Rivers, lakes, and wetlands; or Into the ground?"

The correct answer is "rivers, lakes, and wetlands." For example, according to the EPA: "polluted stormwater runoff is commonly transported through municipal separate storm sewer systems...and then often discharged, untreated, into local water bodies."⁹ In some areas, storm drains do flow to water treatment plants, but this is the exception to the rule.¹⁰

Overall, just over half of all American adults know that storm water ends up in rivers, lakes and wetlands. While there is little variation among answer patterns along demographic or economic lines, there is some variation by age. Specifically, 59% of those age 45 to 54 know where stormwater ends up, compared with less than half of those age 18 to 34 and those older than 64.

Otherwise, there are no significant differences in the answer patterns for this question among demographic groups including gender, parental status, income, level of educational attainment, where people live, or political affiliation.

Figure I.7:
Half of American adults know where storm water ends up; half do not



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019. Question: "In most U.S. towns, when it rains, where does most of the water that goes into storm drains end up?"

Note: The correct answer is "rivers, lakes, and wetlands." Percentages may not sum to 100 since "refused" responses (<1% of responses overall) are not shown.

⁹ <https://www.epa.gov/npdes/stormwater-discharges-municipal-sources>; accessed July 25, 2019.

¹⁰ For example, the Wisconsin Department of Natural Resources states: "Most storm water does not go to a wastewater treatment plant for treatment. Only parts of three cities, Milwaukee, Shorewood and Superior have treatment of storm water at the wastewater treatment plant."

(https://dnr.wi.gov/topic/stormwater/learn_more/whatis.html; accessed July 25, 2019)

Wetlands

To assess whether the American public has a basic understanding of the function of wetlands in the natural water cycle, the survey included this question: “Which one of the following statements is true about wetlands, such as swamps or marshes: They are a renewable source of electricity; They help filter water and prevent flooding; or They pollute nearby lakes and rivers?”

The correct answer is that wetlands help filter water and prevent flooding. According to the EPA:

“[Wetlands] help improve water quality, including that of drinking water, by intercepting surface runoff and removing or retaining inorganic nutrients, processing organic wastes, and reducing suspended sediments before they reach open water.”¹¹

And:

“This combined water storage and slowing action [of wetlands] lowers flood heights and reduces erosion downstream and on adjacent lands. It also helps reduce floods and prevents waterlogging of agricultural lands.”¹²

Wetlands are not a source of renewable energy. Additionally, although excess nutrients and pollutants can leech from wetlands into lakes and rivers, experts do not characterize the wetlands themselves as polluters of lakes and rivers—the other incorrect answer.

Overall, half of all American adults are able to correctly identify the ecological function of wetlands from a list of three possible options. One-quarter incorrectly think that wetlands pollute other bodies of water, and the remainder are split between guessing that wetlands are a source of renewable energy and stating that they don’t know which of the three given options is true.

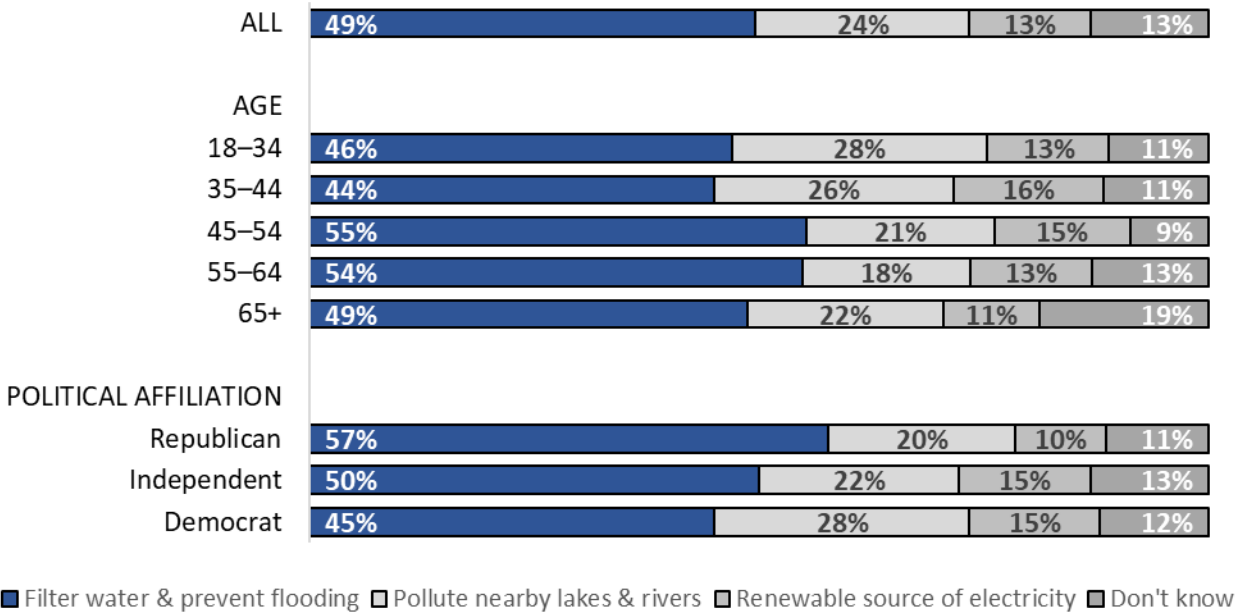
There are not dramatic differences in the answer patterns of the various groups that we are able to assess through this survey. However, respondents age 45 to 64 fare better on this question than did those age 18 to 44. Additionally, the proportion of Republicans who correctly identify the ecological function of wetlands (57%) is statistically higher than the proportion of Democrats who answer correctly (45%).

Otherwise, there are no significant differences in the answer patterns for this question among demographic groups, including gender, parental status, income, level of educational attainment, or where people live.

¹¹ U.S. Environmental Protection Agency, Watershed Academy Web (https://cfpub.epa.gov/watertrain/moduleFrame.cfm?parent_object_id=290, accessed July 18, 2019).

¹² U.S. Environmental Protection Agency, Watershed Academy Web (https://cfpub.epa.gov/watertrain/moduleFrame.cfm?parent_object_id=293, accessed July 18, 2019).

Figure I.8:
Half of American adults know that wetlands help to filter water and prevent flooding, including more than half of those age 45 to 64, and more than half of Republicans



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
 Question: “Which one of the following statements is true about wetlands, such as swamps or marshes? They are a renewable source of electricity; They help filter water and prevent flooding; or They pollute nearby lakes and rivers.”

Note: The correct answer is “they help filter water and prevent flooding.” Percentages may not sum to 100 since “refused” responses (< 1% of all responses overall) are not shown.

Tap water source

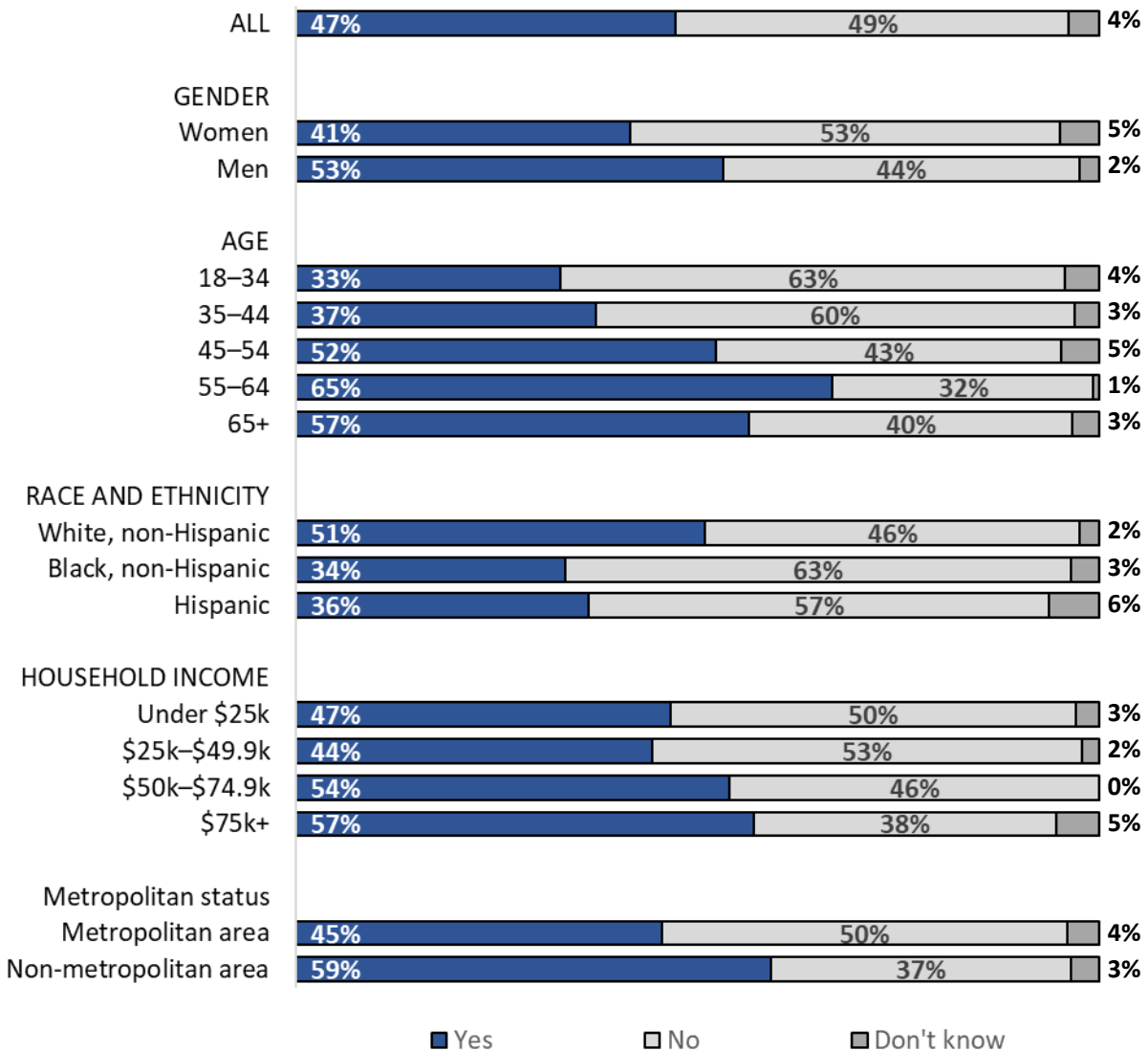
Only half of American adults say they know the original source of the tap water in their homes. Americans get their tap water from a variety of sources, including individual wells, rivers, lakes, reservoirs, and aquifers.

We have no practical way of verifying the accuracy of the half who claim they know the source of their water, but there are some interesting differences among groups in terms of who claims to know the source of their tap water:

- 53% of men, compared to 41% of women.
- Two-thirds of those age 55 to 64, compared to one-third of those age 18 to 34.
- Half of non-Hispanic Whites, compared to about one-third of non-Hispanic Black and Latino adults.

- 57% of those from households with annual incomes of \$75,000 or more, compared to 44% of those from homes making \$25,000 to \$49,999.
- 59% of those from non-metropolitan areas, compared to 45% of those living in metropolitan areas.

Figure I.9:
About half of Americans say they know the source of the tap water in their homes, including higher proportions of older adults, those from higher income households, those from rural areas, men, and Whites



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
 Question: "Do you happen to know the original source of the tap water in your home, such as a river, reservoir, or underground aquifer?"

Note: Percentages may not sum to 100 since "refused" responses (<1% overall) are not shown.

Affordability

Although water is sometimes thought of as free, paying home water bills is problematic for many households. According to a report by Food and Water Watch, “an estimated 15 million people in the United States experienced a water shutoff in 2016” due to nonpayment.¹³

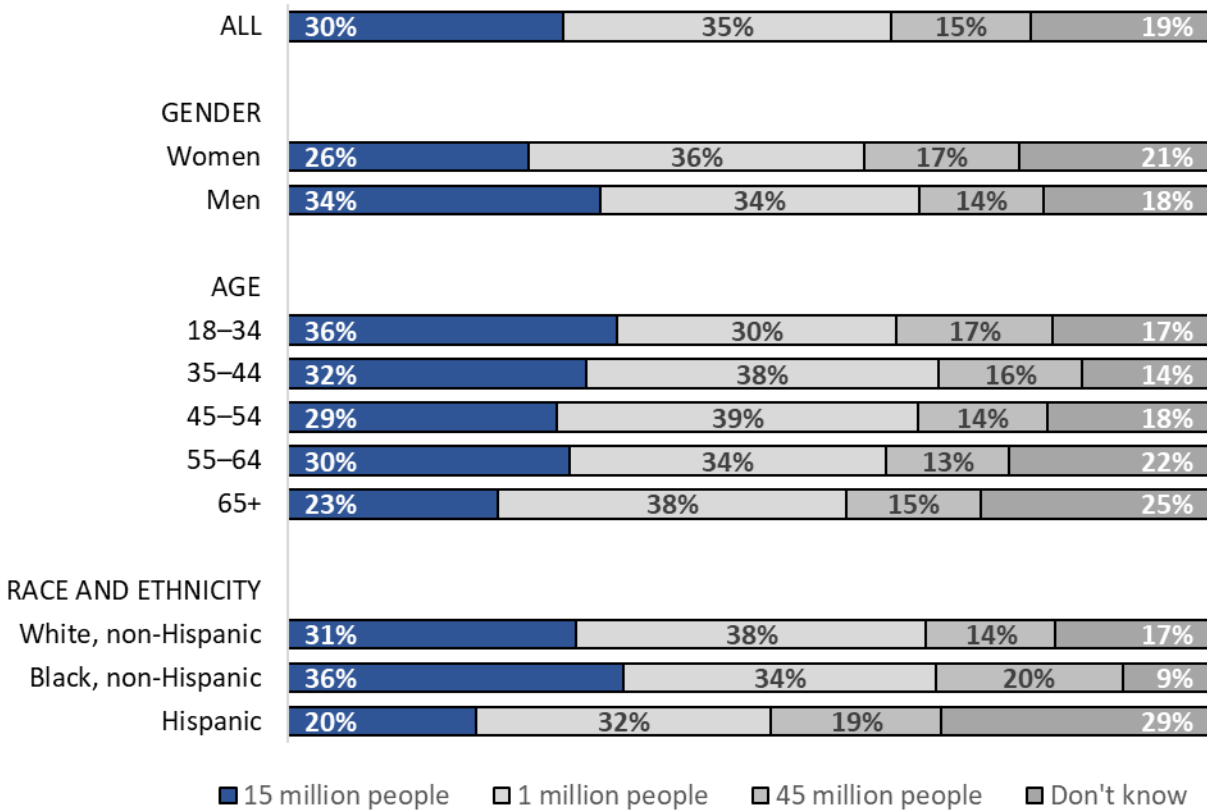
Only 30% of American adults know (or are able to guess) the correct number of annual water shutoffs in the U.S. from a list of three choices: 1 million, 15 million or 45 million. A somewhat higher proportion, 35%, chose the lowest option (1 million Americans experiencing water shutoffs), and nearly 1 in 5 did not hazard a guess.

There are not dramatic differences in the answer patterns of the various groups that we are able to assess through this survey. Men are somewhat more likely to know (or guess) the correct answer than women, as were younger adults as compared with older adults. Both non-Hispanic White and non-Hispanic Black respondents are more likely to answer correctly than are Latinos, who are much more likely to say that they “don’t know” how many fellow Americans experience water shutoffs on an annual basis.

Otherwise, there are no significant differences in the answer patterns to this question among demographic groups, including parental status, income, level of educational attainment, where people live, or political affiliation.

¹³ America's Secret Water Crisis: National shutoff survey reveals water affordability emergency affecting millions (<https://www.foodandwaterwatch.org/insight/americas-secret-water-crisis>, accessed July 17, 2019).

Figure I.10:
Only 30 percent of Americans know—or correctly guess—the number of annual water shutoffs due to nonpayment



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
 Question: “How many Americans get their water shut off each year because they cannot afford to pay their water bills?”

Note: Percentages may not sum to 100 due to rounding and since “refused” responses (<1% overall) are not shown.

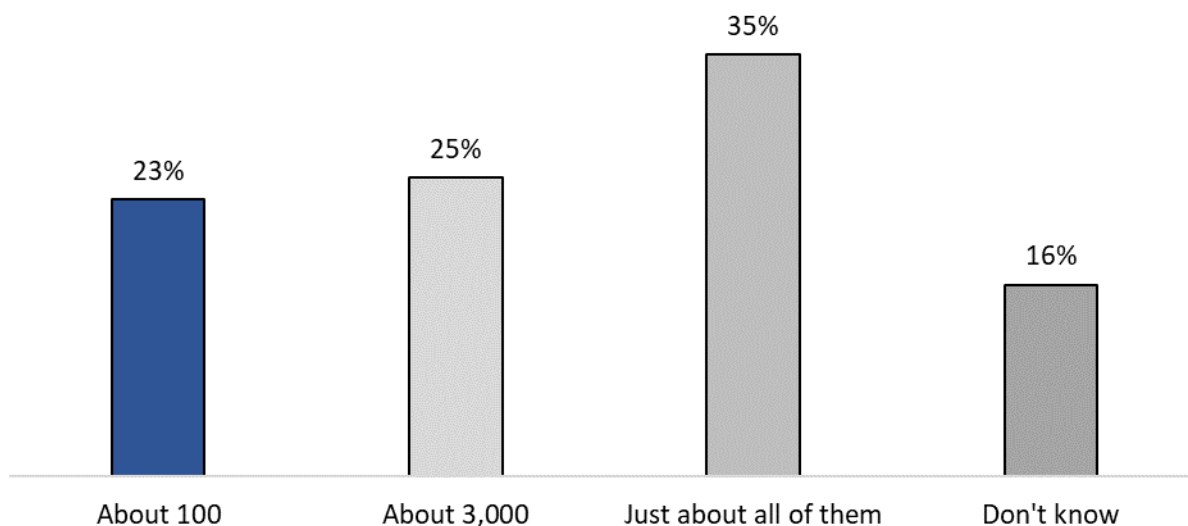
Regulated chemicals

A plurality of over one-third of Americans think that the EPA regulates “just about all” chemical water contaminants. In fact, EPA currently lists 87 regulated drinking water contaminants that have enforceable “Maximum Contaminant Levels;” the agency also lists 15 secondary contaminants with non-enforceable guidelines.¹⁴

Only one-quarter of Americans know—or guess—that the EPA regulates only “about 100” chemical water contaminants. A similar proportion incorrectly guess that “about 3,000” chemicals are regulated, and 1 in 6 indicate they “don’t know.”

There are no significant differences in the answer patterns for this question among demographic groups: Regardless of gender, age, parental status, income, region of the country, level of educational attainment, race, or whether people live in metropolitan areas, only about one-quarter know that the EPA regulates only “about 100” chemical water contaminants. Additionally, the response patterns are very similar among self-identified Republicans, Democrats, and independents.

Figure I.11:
A plurality of American adults mistakenly believes that the EPA regulates nearly all possible water contaminants



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019. Question: “Thinking about the thousands of chemicals that could contaminate drinking water, about how many are regulated by the United States Environmental Protection Agency?”

Note: The correct answer is “about 100.” Percentages do not sum to 100 due to rounding and since “refused” responses (<1% overall) are not shown.

¹⁴ <https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations>; accessed July 25, 2019.

Sources of pollution

The EPA tracks “probable sources contributing to impairments” for each of eight different types of water bodies in its Water Quality Assessment and Total Maximum Daily Load Information.¹⁵ The single largest source of pollution for the five types tracked in acres or square miles (lakes, reservoirs, and ponds; wetlands; bays and estuaries; ocean and near coastal; and Great Lakes open water) is “atmospheric deposition.”¹⁶ As shown in the table below, however, “surface water running off from streets, lawns, and farms” clearly out-pollutes the other options presented in our survey.

When we cross-walk the “probable sources” listed by the EPA to the three options provided in our survey, we clearly see that “surface water running off from streets, lawns and farms” contributes more pollution than does either “garbage dumped from cities” or “waste from factories.”¹⁷

Figure 1.12:
Amount of pollution by category

Survey response category	Miles of rivers, streams, coastal shoreline, and Great Lakes shoreline impaired by category	Square miles of lakes, ocean, wetlands and the like impaired by category ^a
Surface water running off from streets, lawns, and farms ^b	247,245	33,973
Garbage dumped from cities ^c	61,785	7,472
Waste from factories ^d	11,567	3,806

Source: APM Research Lab analysis of U.S. Environmental Protection Agency’s Water Quality Assessment and Total Maximum Daily Load Information.

Note: (a) Lakes, reservoirs, ponds, and wetlands originally reported in acres, converted to square miles. Survey response category includes the following EPA-designated probable source groups (b) urban-related runoff/stormwater; agriculture; unspecified nonpoint source; (c) municipal discharges/sewage; spills/dumping; (d) industrial.

The American public is largely unaware that surface water runoff is the single largest source of water pollution. Only one-quarter of adults know—or guess—that surface water runoff pollutes more than either garbage from cities or waste from factories; over one-third of Americans guess that the latter two are the largest sources of pollution.

None of the groupings that we assess in this survey did better in answering this knowledge question than if they had guessed randomly among the answer choices. Some groups are

¹⁵ National summary of state information

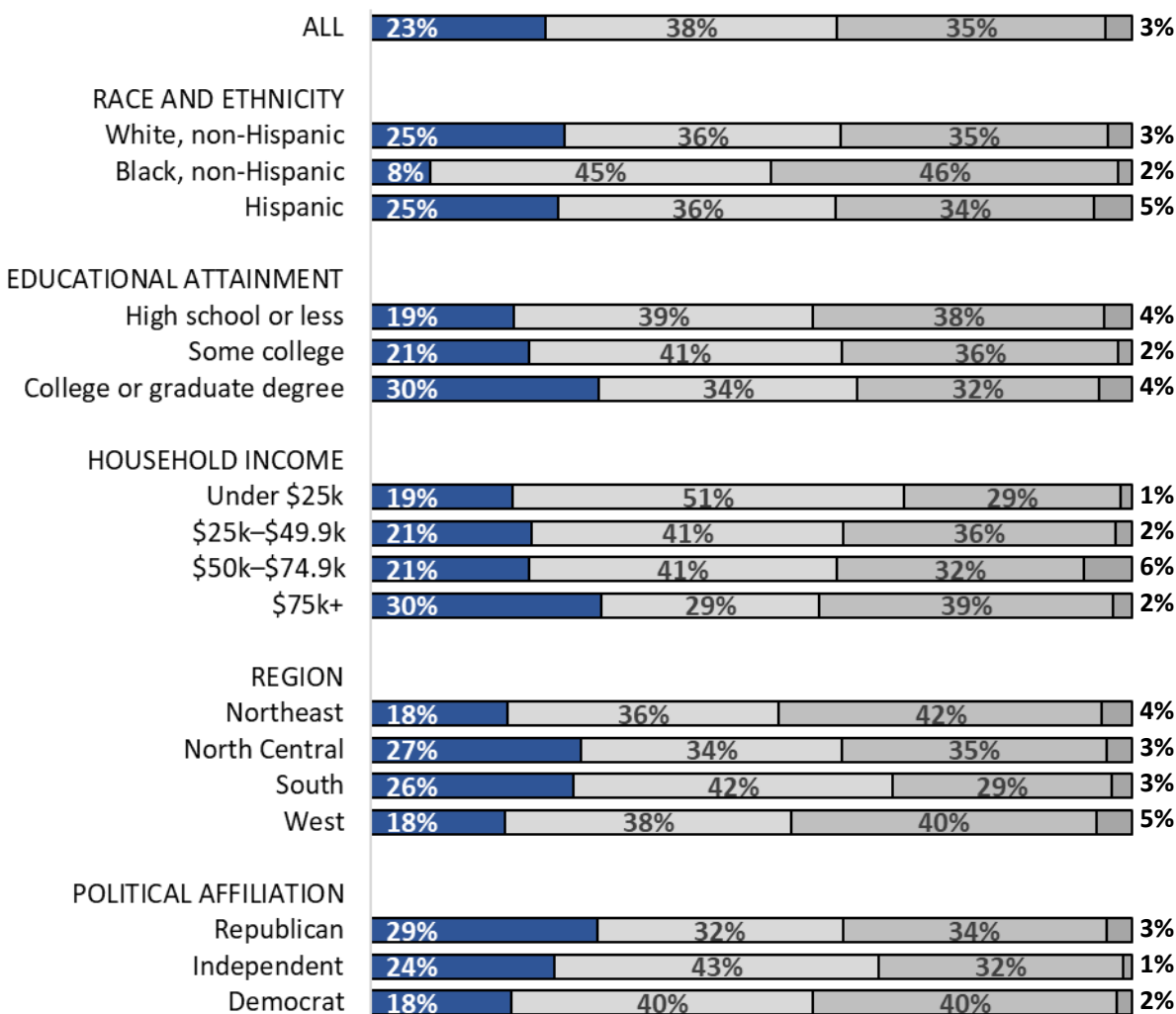
(https://ofmpub.epa.gov/waters10/attains_nation_cy.control#prob_source; accessed July 25, 2019).

¹⁶ According to EPA, atmospheric deposition pollutes a combined total of 61,500 square miles of water.

¹⁷ Note that Among the three types of water bodies tracked in linear miles (rivers and streams; coastal shoreline; and Great Lakes shoreline), the largest single category of pollution is “unknown,” polluting a combined total of 146,000 miles.

notably lower than a random chance result—including African Americans, those with a high school degree or less, those from households with annual incomes below \$25,000, those living in northeastern or western states, and Democrats. In addition to those groups, we also tested for differences by gender, age, parental status, and metropolitan versus non-metropolitan residence, but those groups did not differ significantly from the overall findings.

Figure I.13:
The American public is largely unaware that surface water runoff is the single largest source of water pollution



■ Runoff from streets, lawns & farms ■ Waste from factories ■ Garbage dumped from cities ■ Don't know

Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.

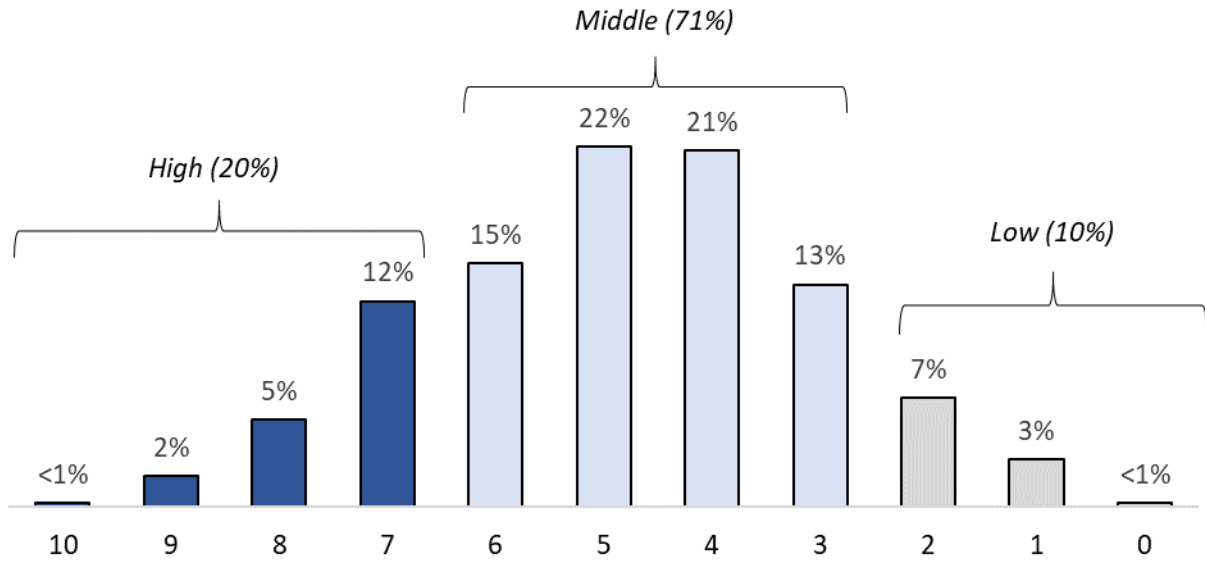
Question: “Which of these is the largest source of pollution of rivers, lakes, and oceans: Surface water running off from streets, lawns, and farms; Waste from factories; or Garbage dumped from cities?”

Note: The correct answer is “surface water running off from streets, lawns, and farms.” Percentages may not sum to 100 due to rounding and since “refused” responses (<1% overall) are not shown.

The Water Knowledge Scale

When the 10 items are summed to form a Water Knowledge Scale, with a possible range of zero to 10 correct answers, the average number correct is 4.8, or 48% of the total possible points. Over half of Americans score in the “middle” range of three to six correct answers, with 20% scoring in the high range and 10% scoring in the low range.

Figure I.14:
Distribution of correct answers on the Water Knowledge Scale



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.

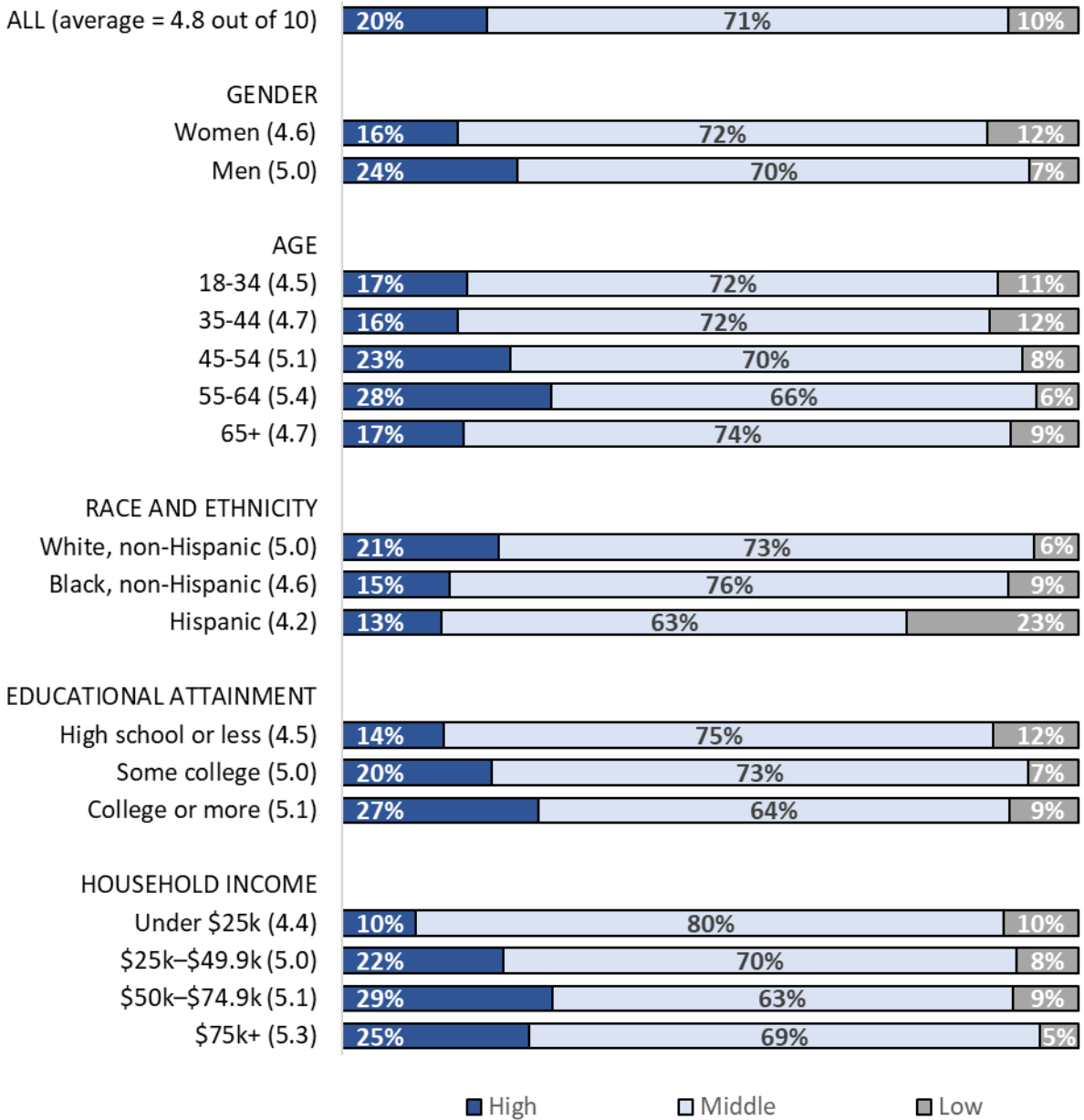
While differences between the various demographic groups are not dramatic, some variations do exist, as noted in the graph below. As a group, men score somewhat higher than women on the Water Knowledge Scale, averaging 5 correct answers compared to 4.6. By age, those in the 55 to 64 bracket tend to score higher on the scale, with 28% scoring in the high range, compared with less than 17% or lower of those younger than 45 or older than 64.

Perhaps not surprisingly, education impacts scores on the Water Knowledge Scale: Those with at least a college education are twice as likely to score in the high range as those whose highest level of education is a high school diploma or less.

Income also impacts the scale scores, with only 10% of those living in households earning less than \$25,000 per year scoring in the high range, compared to 29% of those from households with incomes in the \$50,000 to \$74,999 range.

Nearly one-quarter of Latinos scored in the low range on the Water Knowledge Scale, much higher than either Black or White adults.

Figure I.15: Water Knowledge Scale results by select demographic groupings



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.

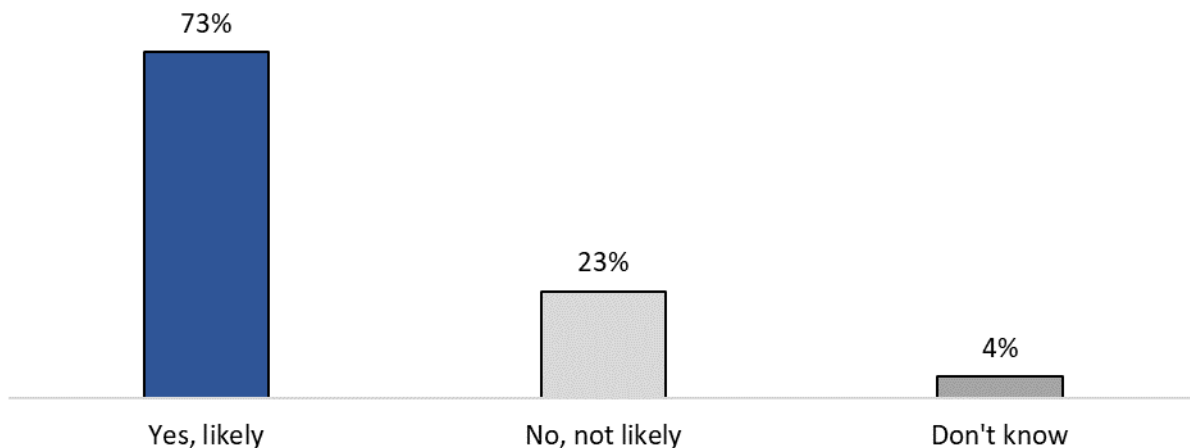
Addendum: Additional water knowledge-related questions

In addition to the 10 questions included in the Water Knowledge Scale, we asked four other water knowledge questions. We did not include these questions in the scale because they lacked completely unambiguous, documented answers in the scientific literature. Still, the results may be instructive to those working to help inform the public about water-related issues.

Water supply

Most of the American public—73% of all adults—think that there is likely to be a shortage in the supply of fresh water in the foreseeable future. Although there is some disagreement around timing and how water supply will change for specific regions of the country, most scientific literature points to decreasing fresh water supplies. For example, the federal government’s Fourth National Climate Assessment states: “Changes in precipitation and runoff, combined with changes in consumption and withdrawal, have reduced surface and groundwater supplies in many areas. These trends are expected to continue, increasing the likelihood of water shortages for many uses.”¹⁸

Figure I.16:
Three-quarters of American adults believe that there will be a decrease in the supply of fresh water in the U.S. over the next 20 years



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019. Question: “Please tell me whether or not you think it is likely that each of the following will happen over the next 20 years in the U.S.: A decrease in the supply of fresh water.”

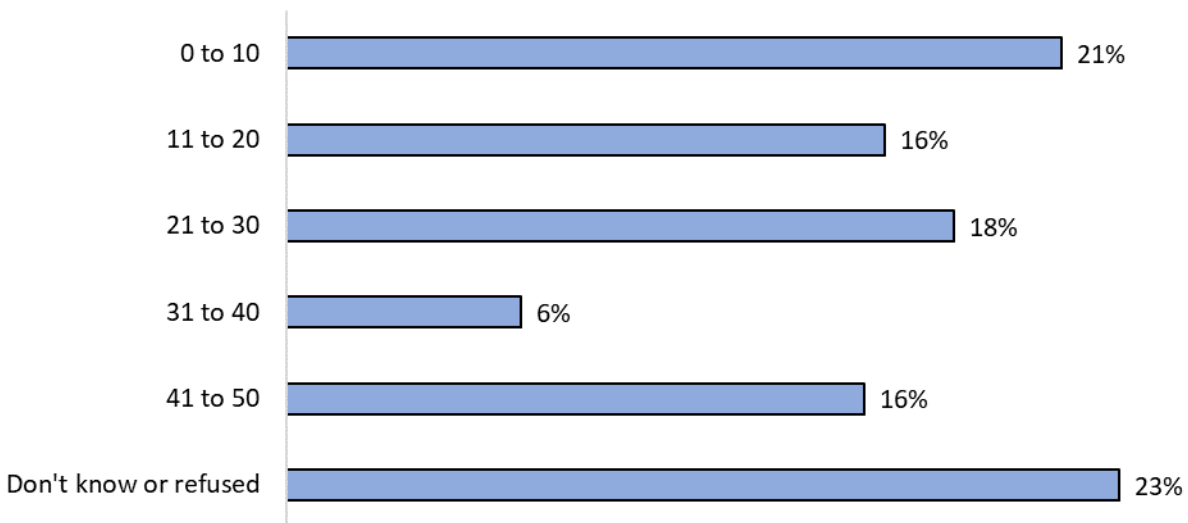
Note: “Refused” responses (<1% overall) are not shown.

¹⁸ U.S. Global Change Research Program (2017), Fourth National Climate Assessment (<https://nca2014.globalchange.gov/highlights/report-findings/water-supply>, accessed July 25, 2019). Note that the USGCRP is a cross-agency federal program mandated by Congress to coordinate research and investments in understanding the forces shaping the global environment, both human and natural, and their impacts on society.

In a related question we asked, “As far as you know, how many of the 50 states in the U.S. anticipate a water shortage in some part of their state in the next 10 years?” Perhaps the best-informed answer to this question comes from a report published by the nonpartisan U.S. Government Accountability Office (GAO) in 2014. In that report, the GAO found that “40 of 50 state water managers expected shortages in some portion of their states under average conditions in the next 10 years.”¹⁹

Answers to this survey question diverge greatly, ranging from 0 (2% of all responses) to 50 (13%; the single most popular answer). The average is right in the middle: 24.7, but the variation around that average is large (standard deviation = 15.8), and nearly 1 in 4 adults did not hazard a guess.

Figure I.17:
Americans diverge widely in their guesses of how many states may be facing water shortages over the next decade; nearly one-quarter either refused to answer or said “don’t know”



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019. Question: “As far as you know, how many of the 50 states in the U.S. anticipate a water shortage in some part of their state in the next 10 years?”

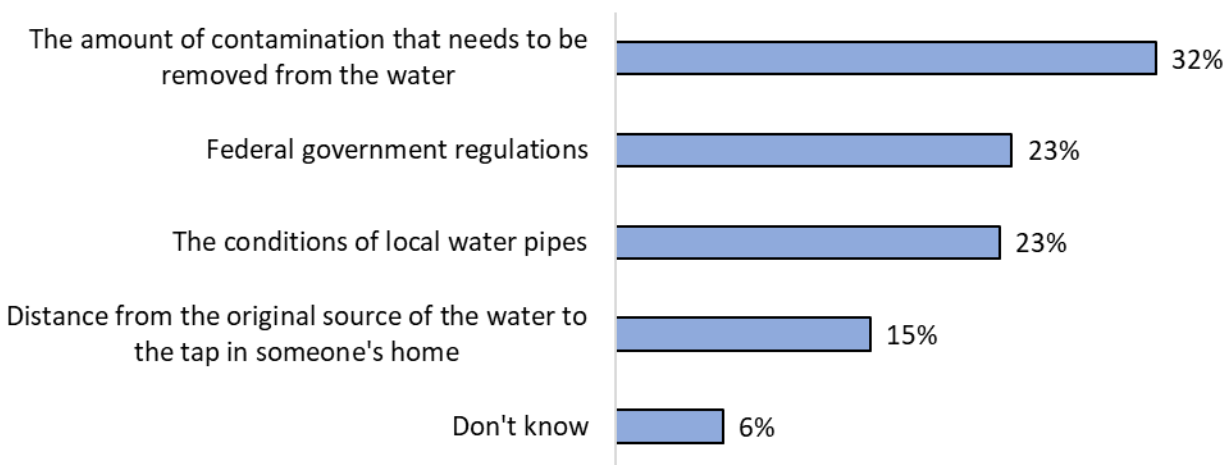
¹⁹ GAO, “Supply Concerns Continue, and Uncertainties Complicate Planning,” May 20, 2014 (<https://www.gao.gov/products/GAO-14-430>; accessed November 4, 2019).

Impacts on water costs

The American public is split on what drives the costs of its tap water. Approximately one-third believe that removing contamination from the water is the main cost driver. Nearly one-quarter indicate federal government regulations are the main cost drivers of tap water, while another quarter think that costs are primarily driven by the conditions of local water pipes.

We are not aware of any econometric modeling of tap water prices in relation to these categories, making it difficult to assess which answers should be deemed right and wrong. However, some recent reporting suggests that the conditions of local water pipes is a primary driver of cost increases, at least in the great lakes region.²⁰

Figure I.18:
One-third of adults believes that removing contamination is the main driver of tap water costs



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
Question: "Generally speaking, which of the following has the biggest impact on the cost of tap water?"
Note: Percentages may not sum to 100 due to rounding and since "refused" responses (<1% overall) are not shown.

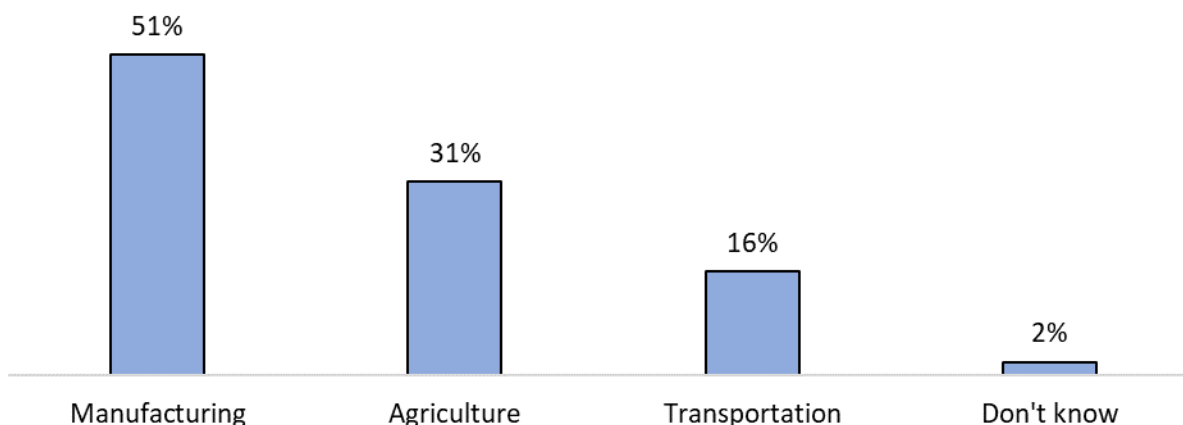
²⁰ Maria Zamudio and Will Craft, "So close, yet so costly: In cities on the Great Lakes, water pipes are crumbling and poor people are paying the price" (APM Reports, February 7, 2019; <https://www.apmreports.org/story/2019/02/07/great-lakes-water-shutoffs>).

Pollution by sector

When given the choice of three sectors as potential leading contributors to water pollution—manufacturing, agriculture and transportation—half of American adults chose manufacturing. Most of the rest (31% overall) believe agriculture to be the largest source of water pollution. This is largely consistent with a survey we conducted earlier this year which also found that manufacturing was the most common answer to the same question from a list of six possible sectors.²¹

While the EPA clearly shows that agricultural runoff is a larger source of pollution than manufacturing, there is no clear comparison with transportation as a sector.²²

Figure I.19:
Half of Americans think manufacturing pollutes more water than either agriculture or transportation



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.

Question: “Of the following industries or sectors, which one do you think pollutes water the most?”

Note: “Refused” responses (<1% overall) are not shown.

²¹ Manufacturing, food and agriculture, transportation, energy, health care, and information technology. See <https://www.apmresearchlab.org/what-do-americans-think-about-water-use-and-pollution>.

²² U.S. Environmental Protection Agency, Water Quality Assessment and Total Maximum Daily Load Information site, National Summary of State Information (https://ofmpub.epa.gov/waters10/attains_nation_cy.control, accessed July 18, 2019).

CONNECTION

We worked with the staff of the Water Main to design a short series of five questions that assess the American public's emotional relationship or "connection" to water. Based partially on previous research collaborations with the Water Main, we sought to capture various dimensions of this relationship, including both intellectual and behavioral connections.²³

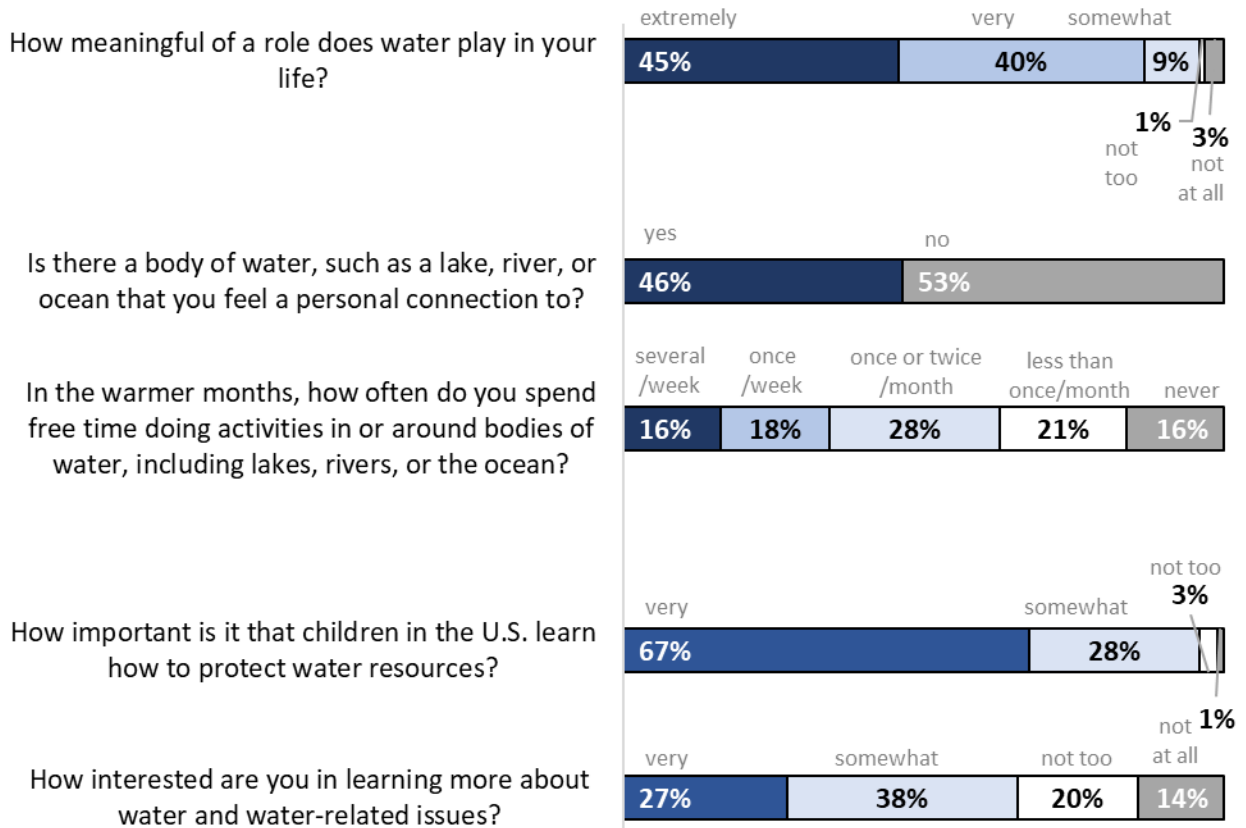
As noted in the figure below, 85% of Americans say that water plays a very or extremely meaningful role in their life. About half of Americans indicate that they feel a personal connection with a specific lake, river, or ocean. Additionally, 62% indicate that they spend free time in or around bodies of water at least once per month during the warmer months of the year.

In terms of connections to water through learning, two-thirds of Americans think it is very important for children in the U.S. to learn about protecting water resources, and just over a quarter indicate this sort of education is "somewhat" important. In regard to their own on-going education, nearly two-thirds indicate at least some interest in learning more about water-related issues.

Virtually all American adults indicate some sort of connection to water in response to these five questions: only 3 of 1,005 respondents consistently answered in the negative to these questions about connectedness. The next several pages provide more detail on the responses to each of the questions, including how responses differ according to various group characteristics.

²³ How Americans Relate to Water: A Qualitative Study for the Water Main, November 2018 (<https://www.apmresearchlab.org/water>).

Figure 2.1:
Most Americans indicate that water plays a meaningful role in their life and feel that children should learn how to protect water resources; about half say they are personally connected to a body of water



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
 Note: Percentages may not sum to 100 since “don’t know” and “refused” responses are not shown.

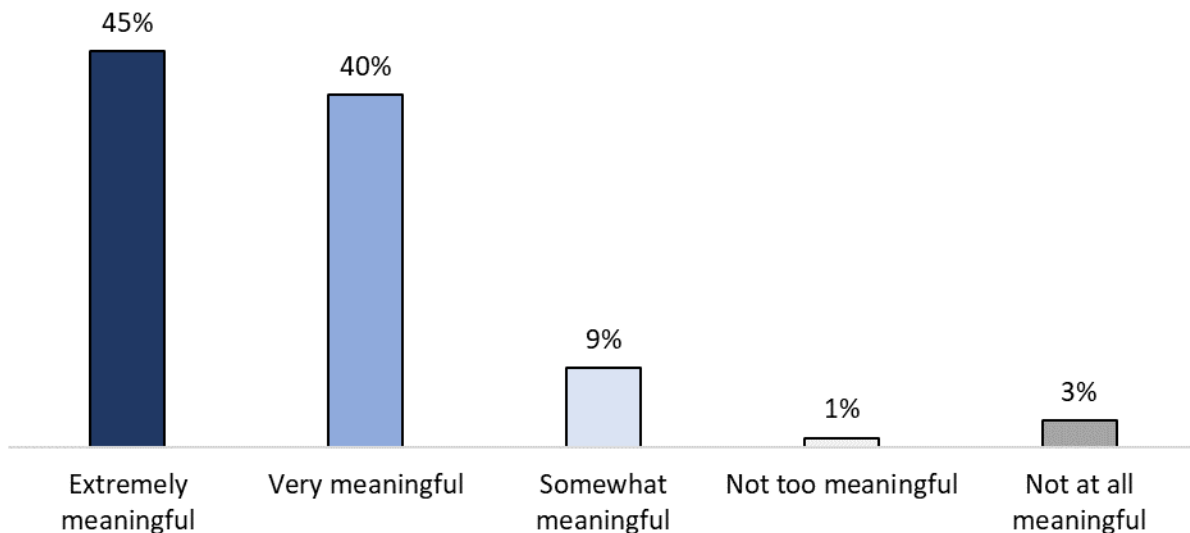
General connection through water’s “meaningful role in life”

To measure the extent to which Americans feel that water plays a meaningful role in their lives we asked them to respond to a five-point scale. Nearly half of Americans (45%) indicate that water plays an “extremely” meaningful role in their lives, and only 3% say that water is “not at all” meaningful to them.

There are virtually no significant differences in the answer patterns of the demographic groups that we are able to test in response to this question on the survey. Regardless of gender, age, parental status, income, level of educational attainment, race, or place of residence, the majority of Americans indicate that water plays an extremely or very meaningful role in their lives. Additionally, the response patterns are very similar among self-identified Republicans, Democrats, and independents.

Figure 2.2:

94% of Americans indicate that water plays at least a somewhat meaningful role in their life, including nearly half who say water is “extremely” meaningful



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
Question: “How meaningful of a role does water play in your life?”

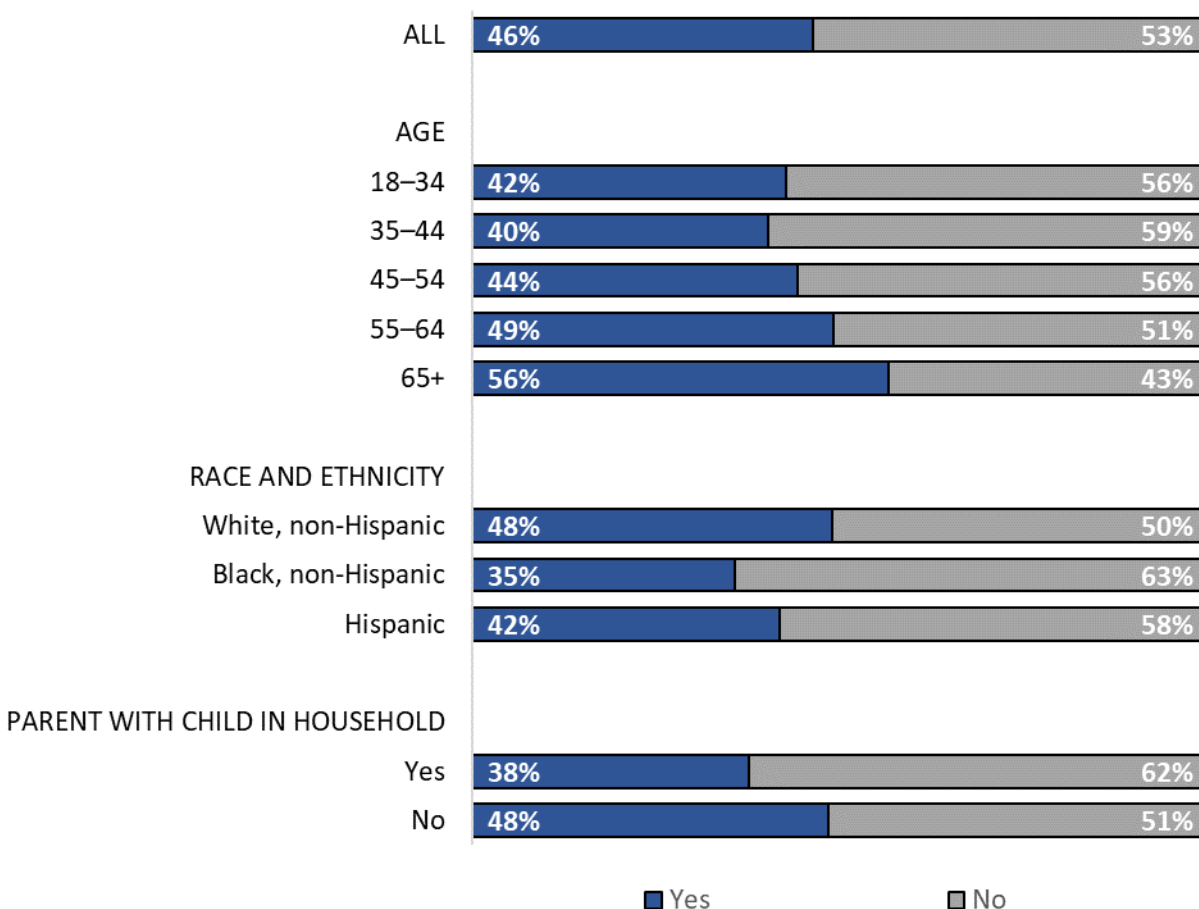
Note: Percentages may not sum to 100 since “don’t know” and “refused” responses are not shown.

Personal connection to a specific body of water

Half of Americans say they are personally connected to a body of water. A significantly higher proportion of older adults feel this sort of connection: 56% of those over age 64, compared with about 40% of adults under age 45.

Additionally, African Americans are less likely to feel connected to a body of water than are Whites, as are parents with children in their household as compared with those who do not have their own minor children living with them. We do not see significant differences in the answer patterns of American adults based on gender, income, educational attainment, place of residence, or political affiliation.

Figure 2.3:
Half of all Americans feel connected to a specific body of water, including more than half of those age 65 or older



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019. Question: “Is there a body of water, such as a lake, river, or ocean that you feel a personal connection to?”

Note: Percentages may not sum to 100 since “don’t know” and “refused” responses are not shown.

Frequency of connecting to water through recreation

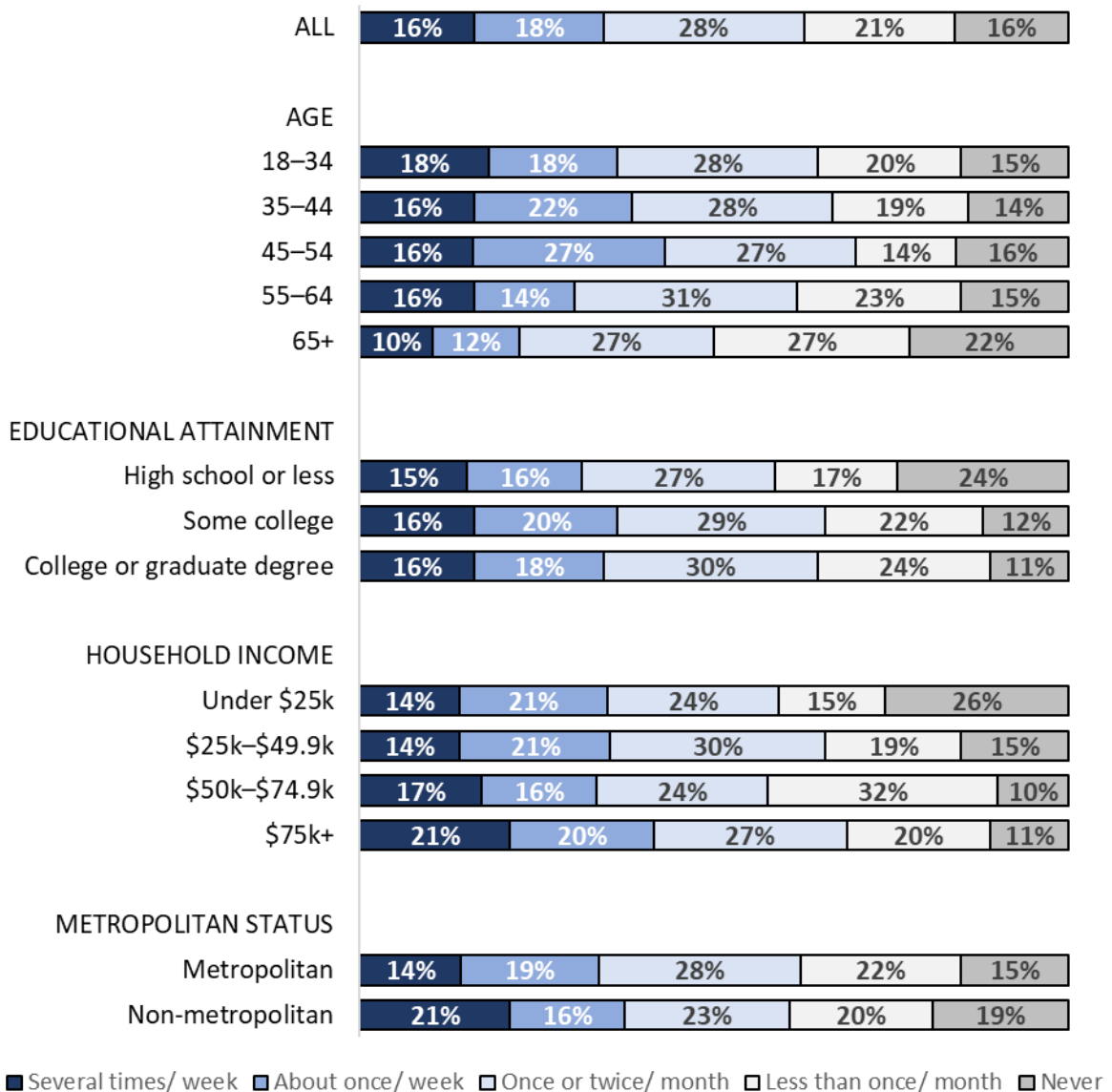
Most Americans regularly “connect” to water through recreational activities. About 1 in 6 adults say they spend free time “in or around bodies of water including lakes, rivers, or the ocean” several times per week. Slightly more recreate near water once a week, and even more—over 1 in 4 American adults—spend free time near water once or twice per month. Altogether, 62% or the equivalent of more than 157 million American adults say they spend free time near bodies of water at least one time during each of “the warmer months” of the year.²⁴

The frequency of recreating near water does not differ in any meaningful way between men and women, region of the country, race and ethnicity, parental status, or political affiliation. There are, however, some differences according to age, income, educational attainment, and metropolitan status.

Half of older adults (age 65 or older) say they spend free time near water less than once per month or never, compared with only about one-third of adults younger than age 65. About one-quarter of adults from households with annual incomes under \$25,000 and those with a high school education or less say that they never spend time near water; twice the rate of their higher income and more highly educated counterparts.

²⁴ These results are similar to another recent national survey done by the APM Research Lab with the Water Main, which found that 68% of American adults spend free time in nature at least once or twice a month, and 16% never do. See <https://www.apmresearchlab.org/nature>.

Figure 2.4:
Frequency of recreation near water is related to age, income, education, and residence in a metropolitan versus non-metropolitan area



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
 Question: “In the warmer months, how often do you spend free time doing activities in or around bodies of water, including lakes, rivers, or the ocean?”

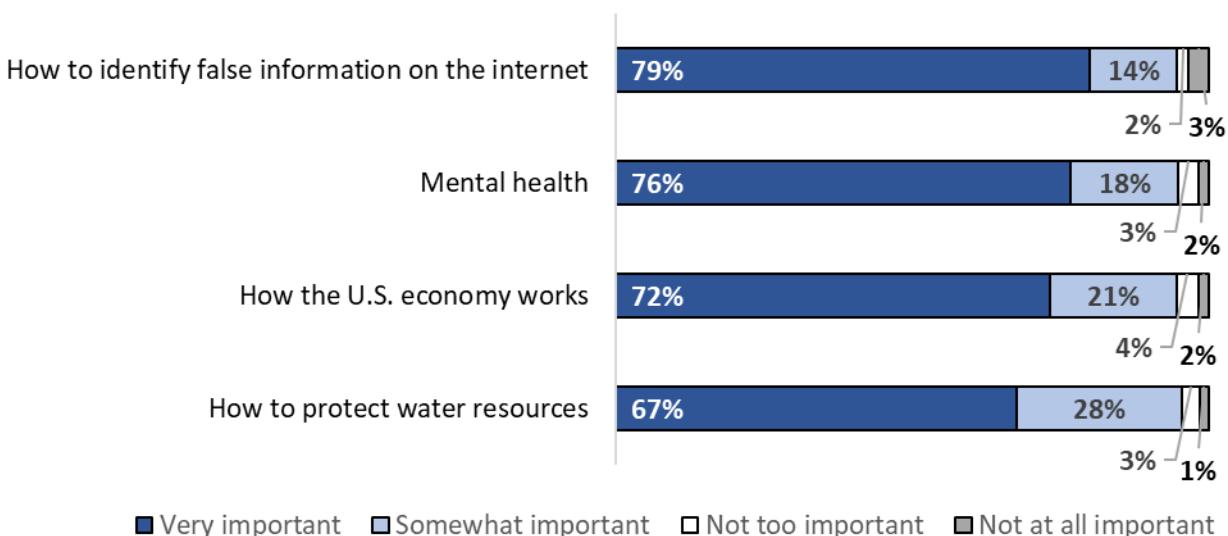
Note: Percentages may not sum to 100 since “don’t know” and “refused” responses are not shown.

Connecting to water through desire to educate children

Another aspect of connection to water is the degree to which any one individual thinks that others should learn about it. To gauge that—and to provide context for that question—we asked adults how important it is for American children to learn about four different topics: identifying false information on the internet, mental health, the workings of the U.S. economy and protecting water resources.

Two-thirds of adults feel that it is “very important” for children to learn how to protect water resources and most others feel it is “somewhat important.” This is a strong consensus, but it is not as strong as Americans’ support for other topics we asked about, notably teaching children “how to identify false information on the internet,” which is rated very important by 79% of American adults.

Figure 2.5:
Strong majorities of Americans see importance in teaching children about water, the economy, mental health, and consuming information on the internet



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
 Question: “Please tell me how important it is that children in the U.S learn about each of the following...”
 Note: Percentages may not sum to 100 since “don’t know” and “refused” responses are not shown.

In terms of learning about the protection of water resources, a somewhat higher proportion of women than men feel it is “very important” (71% compared to 63%). Parents who live with a minor-aged child are similarly more likely to think that learning about water is very important than is the case for non-parents. Additionally, adults from households making less than \$25,000 annually and those with only a high school diploma (or less) are more likely to emphasize the importance of learning about water protection. An even bigger difference exists along lines of political affiliation, with three-fourths of Democrats and independents indicating that learning about water protection is very important, compared with one-half of Republicans.

Figure 2.6:
Proportion of various groups indicating it is “very important” for children to learn about water, the economy, mental health, and consuming information online

	How to protect water	How the U.S. economy works	Mental health	Consuming information on the internet
ALL	67%	72%	76%	79%
Gender				
Women	71%	71%	80%	80%
Men	63%	73%	72%	78%
Age				
18-34	71%	70%	77%	77%
35-44	69%	67%	76%	82%
45-54	67%	79%	84%	81%
55-64	62%	74%	72%	79%
65+	66%	71%	72%	77%
Parent with child in household				
Yes	75%	75%	78%	84%
No	65%	72%	76%	77%
Race and ethnicity				
White, non-Hispanic	66%	73%	74%	81%
Black, non-Hispanic	71%	75%	85%	87%
Hispanic	72%	60%	76%	73%
Educational attainment				
High school or less	72%	72%	77%	77%
Some college	68%	75%	75%	79%
College or graduate degree	60%	70%	76%	80%
Household income				
Under \$25k	80%	70%	86%	84%
\$25k-\$49.9k	71%	72%	73%	74%
\$50k-\$74.9k	65%	70%	75%	84%
\$75k+	63%	77%	77%	86%
Political affiliation				
Republican	51%	70%	68%	73%
Independent	74%	75%	79%	81%
Democrat	73%	71%	81%	83%

Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
 Question: “Please tell me how important it is that children in the U.S learn about each of the following...”
 Note: Blue shading indicates the percentage is statistically higher than at least one other in its column and within each grouping (such as Age).

As shown in the table, group-by-group patterns of preference reveal that strong majorities of virtually all groups indicate that educating children in all four topics is “very important.” Other than that, the most consistent pattern is political affiliation, with significantly higher proportions of Democrats than Republicans indicating that it is very important for children to learn about three out of the four topics: water protection, mental health, and identifying false information on the internet. Independents are significantly more likely than Republicans to indicate that education is very important in two cases: water protection and mental health.

With the exception of political affiliation, variations in the consensus around the importance of education in these areas are not consistent. While somewhat higher proportions of women than men indicate that teaching children about “protecting water resources” and “mental health” is very important, neither parental status, nor household income, nor educational attainment appears to be significantly related to attitudes about mental health education.

A higher proportion of those age 45 to 54 than other age groups indicate they are very interested in having children learn about mental health, which is also the case for learning “how the U.S. economy works.” More Whites than Hispanics emphasize the importance of teaching economics, while more African Americans than Hispanics indicate that learning “how to identify false information on the internet” is very important.

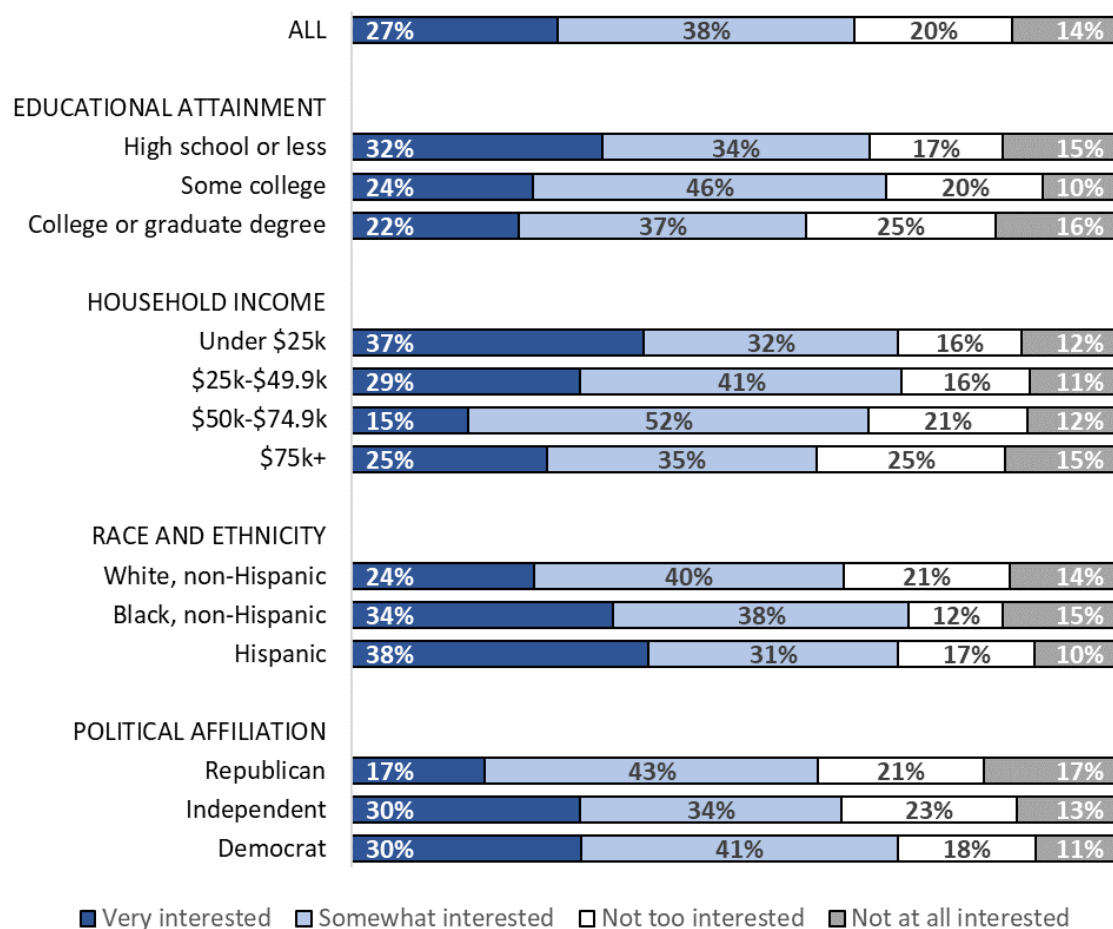
Attitudes about the relative importance of educating children about these four topics do not appear to vary by either metro status or region of the country.

Connecting to water through personal learning

A plurality of Americans, nearly 40%, are “somewhat interested” in learning more about water and water-related issues. About one-fourth are “very interested,” while one-third are either “not too interested” (20%) or “not at all interested” (14%). These answer patterns do not change significantly based on the respondents’ gender, age, parental status, or place of residence.

Somewhat surprisingly, a higher proportion of those with less formal education (high school diploma or less) are very interested in learning more about water-related issues than are those with higher levels of education. Additionally, a higher proportion of those with lower incomes say they are very interested in learning more about water, as are Latinos and those identifying politically as either Democrats or independents.

Figure 2.7:
Interest in learning more about water varies by educational attainment, income, race, and political affiliation



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019. Question: “How interested are you in learning more about water and water-related issues?”

Note: Percentages may not sum to 100 since “don’t know” and “refused” responses are not shown.

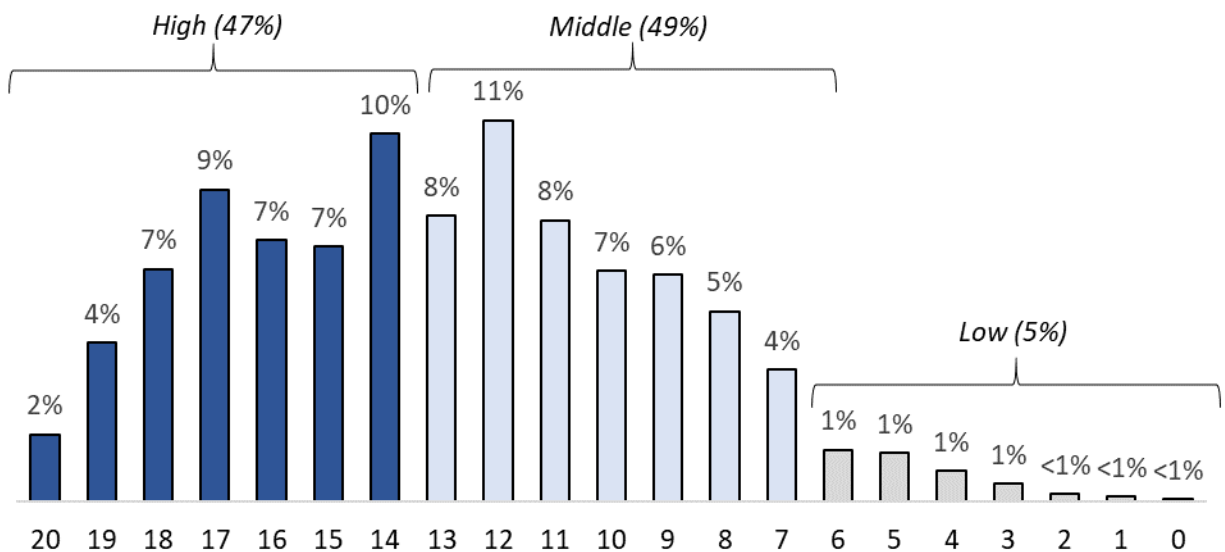
The Water Connection Scale

To provide a summary of overall connectedness to water we combined the answers to five questions in an additive scale, assigning respondents 0 to 4 points on each answer, as shown.

	<i>Assigned points</i>				
	4	3	2	1	0
How meaningful a role does water play in your life?	Extremely	Very	Somewhat	Not too	Not at all
Is there a body of water...that you feel a personal connection to?	Yes	--	--	--	No
In the warmer months, how often do you spend free time around bodies of water?	Several times a week	Once a week	Once or twice a month	Less than once a month	Never
How important to you is it that children in the U.S. learn to protect water resources?	Very	Some-what	--	Not too	Not at all
How interested are you in learning more about water and water-related issues?	Very	Some-what	--	Not too	Not at all

Note: Responses of “don’t know” are assigned 0 points; refusals are treated as missing values.

Figure 2.8:
Distribution of Water Connection Scale scores



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019. Note: Those refusing to answer any of the five questions that make up this scale are treated as missing (8 respondents overall). Percentages may not add to 100 due to rounding.

Out of a possible 20 points on the Water Connection Scale, the overall average score is 12.9 points, or 65% of the total possible. Additionally, when the total points of the scale are divided into 3 equal ranges, it is notable that about half score in the “high” and “middle” ranges (47% and 49%, respectively), with just under 5% scoring in the “low” range.

To see if there are any discernable patterns of concern for water among different groups of American adults, we then conducted a series of analyses comparing both the average scores and proportion in high, middle, and low categories. None of the groups we tested—neither women versus men, age grouping, parents compared with non-parents, different racial groups, different levels of education, income groupings, region of the country, metropolitan area residents versus rural residents, nor political affiliations—show significant differences in their response patterns to the overall Water Connection Scale.

CONCERN

Another aspect of emotional connection with water is the level of concern that any particular individual has about water and water-related issues. We worked with staff of the Water Main to design five questions to help assess Americans' concern for water and water-related issues:

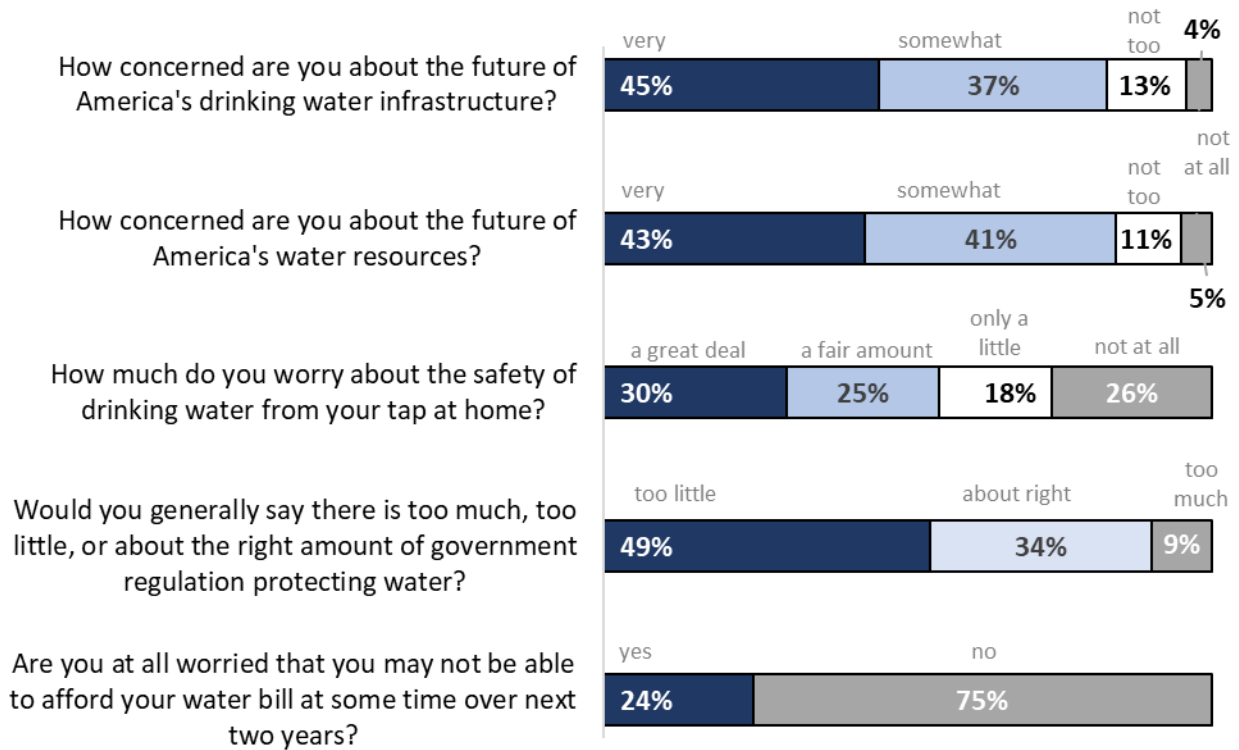
- How concerned are you about the future of America's drinking water infrastructure, such as pipes, pumps, and treatment systems?
- How concerned are you about the future of America's water resources, such as lakes, rivers, and streams?
- How much do you worry about the safety of drinking water from your tap at home?
- Would you generally say there is too much, too little, or about the right amount of government regulation protecting water?
- Are you at all worried that you may not be able to afford your water bill at some time over next two years?

Overall, Americans indicate the highest levels of concern for the future of both water infrastructure and America's water resources: more than 4 in 10 say they are "very concerned" about these issues, while 3 in 10 say they worry "a great deal" about the safety of the drinking water in their home.

Fifty-eight percent of Americans indicate concern about the level of governmental regulation, with 49% indicating there is "too little" regulation and 9% indicating "too much." One-third say that the amount of regulation is "about right." Twenty-four percent of Americans are concerned that they may not be able to afford their water bills at some time over the next two years.

Figure 3.1:

Over 80% express concern for the future of infrastructure and America’s water resources; about half are worried about their home’s drinking water and are unsatisfied with the level of water regulation; and one-quarter worry about water bills



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.

Note: Percentages may not sum to 100 since “don’t know” and “refused” responses are not shown.

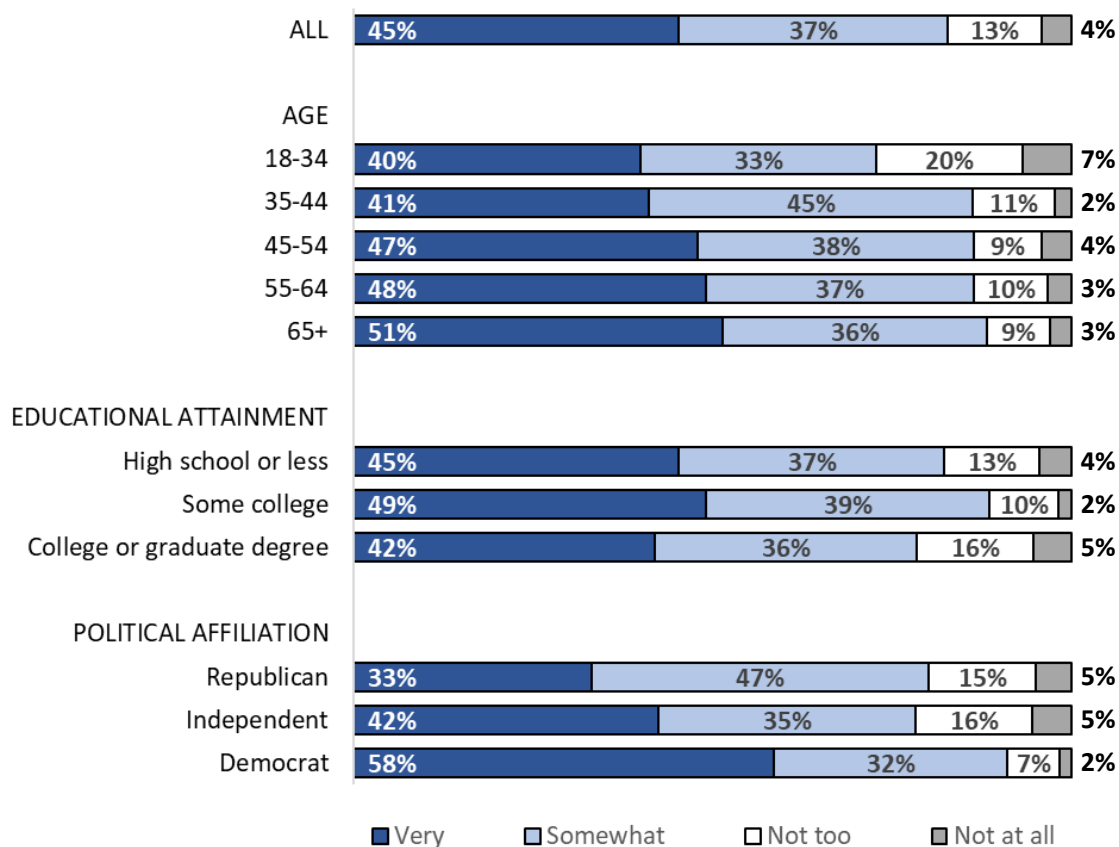
Concerns about the future: Water infrastructure and resources

Strong majorities of almost all groups in the survey indicate at least some level of concern in response to two questions related to the future of water in America: drinking water infrastructure and water resources in general. But within that larger consensus, some group-level variations exist.

Somewhat surprisingly, younger adults—those with the longest future ahead of them—indicate somewhat less concern than do older age groups. Level of concern about the future of drinking water infrastructure also varies by level of education; those with “some college” indicate somewhat higher levels of concern than either those with less or more formal education.

The most notable group-by-group variation in these future-oriented concerns is by political affiliation. A higher proportion of those identifying as Democrats indicate they are very concerned than is the case among Republicans.

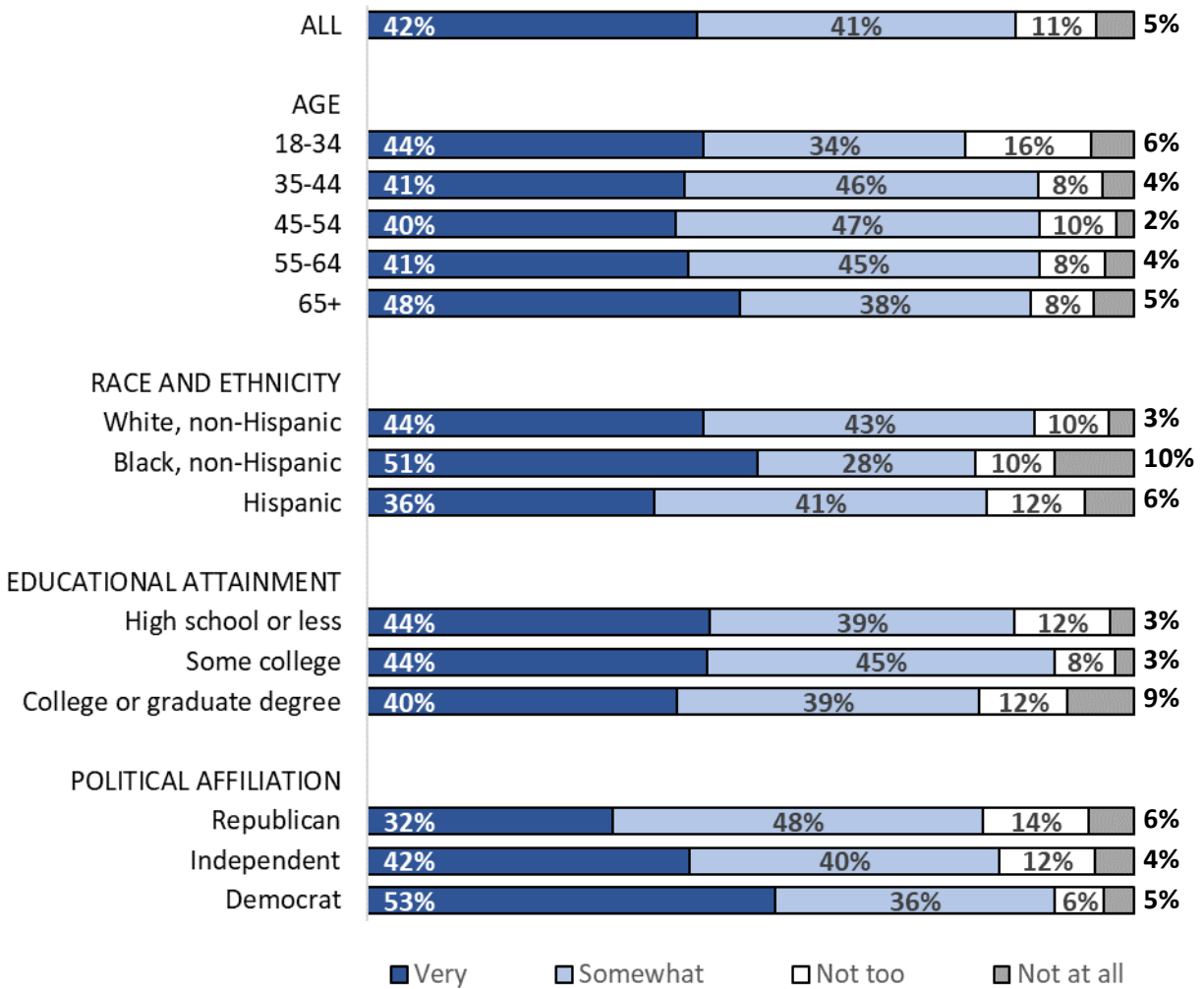
Figure 3.2:
Level of concern for the future of America’s drinking water infrastructure varies by age, educational attainment, and political affiliation



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019. Question: “How concerned are you about the future of America’s drinking water infrastructure, such as pipes, pumps, and treatment systems?”

Note: Percentages may not sum to 100 since “don’t know” and “refused” responses are not shown.

Figure 3.3:
Level of concern for the future of America’s water resources varies by age, race, educational attainment, and political affiliation



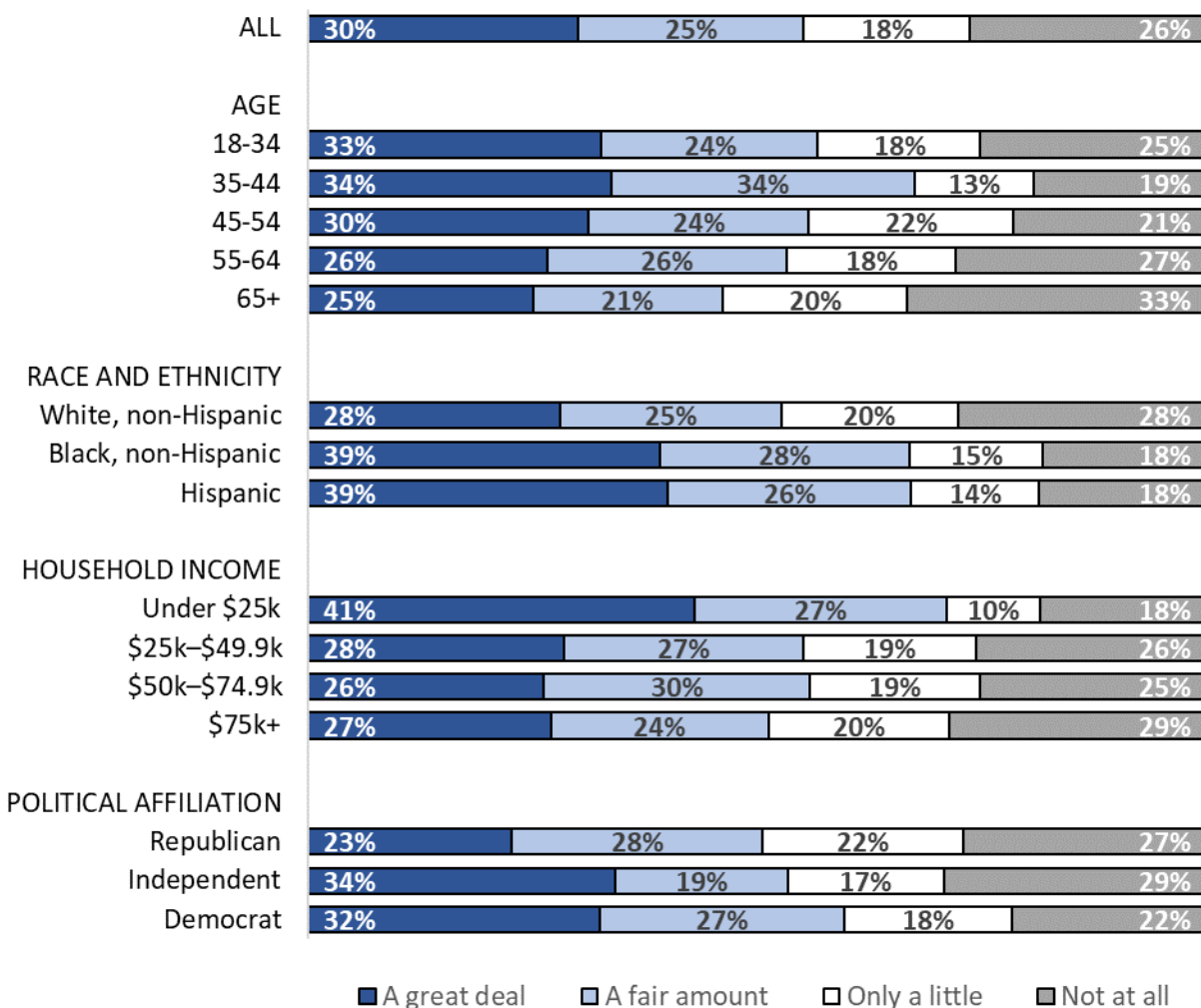
Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
 Question: “How concerned are you about the future of America’s water resources, such as lakes, rivers, and streams?”

Note: Percentages may not sum to 100 since “don’t know” and “refused” responses are not shown.

Current concerns about tap water safety

Over half of all American adults worry about the safety of the drinking water from their tap at home, including 30% who worry “a great deal” and another 25% who worry “a fair amount.” The same can be said of nearly all of the groups of adults assessed through this survey. The age category 65 or older is the only group with a higher proportion indicating general lack of worry (“not at all” + “only a little”). Nearly half of all Whites and Republicans also indicate low levels of worry, as do those from higher income households.

Figure 3.4:
Level of worry about the safety of drinking water from home taps varies by age, race, income, and political affiliation



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
Question: “How concerned are you about the future of America’s water resources, such as lakes, rivers, and streams?”

Note: Percentages may not sum to 100 since “don’t know” and “refused” responses are not shown.

Concerns about government regulations related to water

Government regulation is one avenue for addressing concerns related to water. The results of this survey, suggest that one-third of Americans are satisfied with the current level of government regulation protecting water. About half feel there is “too little” government regulation, and another 9% indicate there is “too much.” Additionally, 8% overall indicate they “don’t know,” with the proportion of such responses reaching into the double digits among some groups of adults.

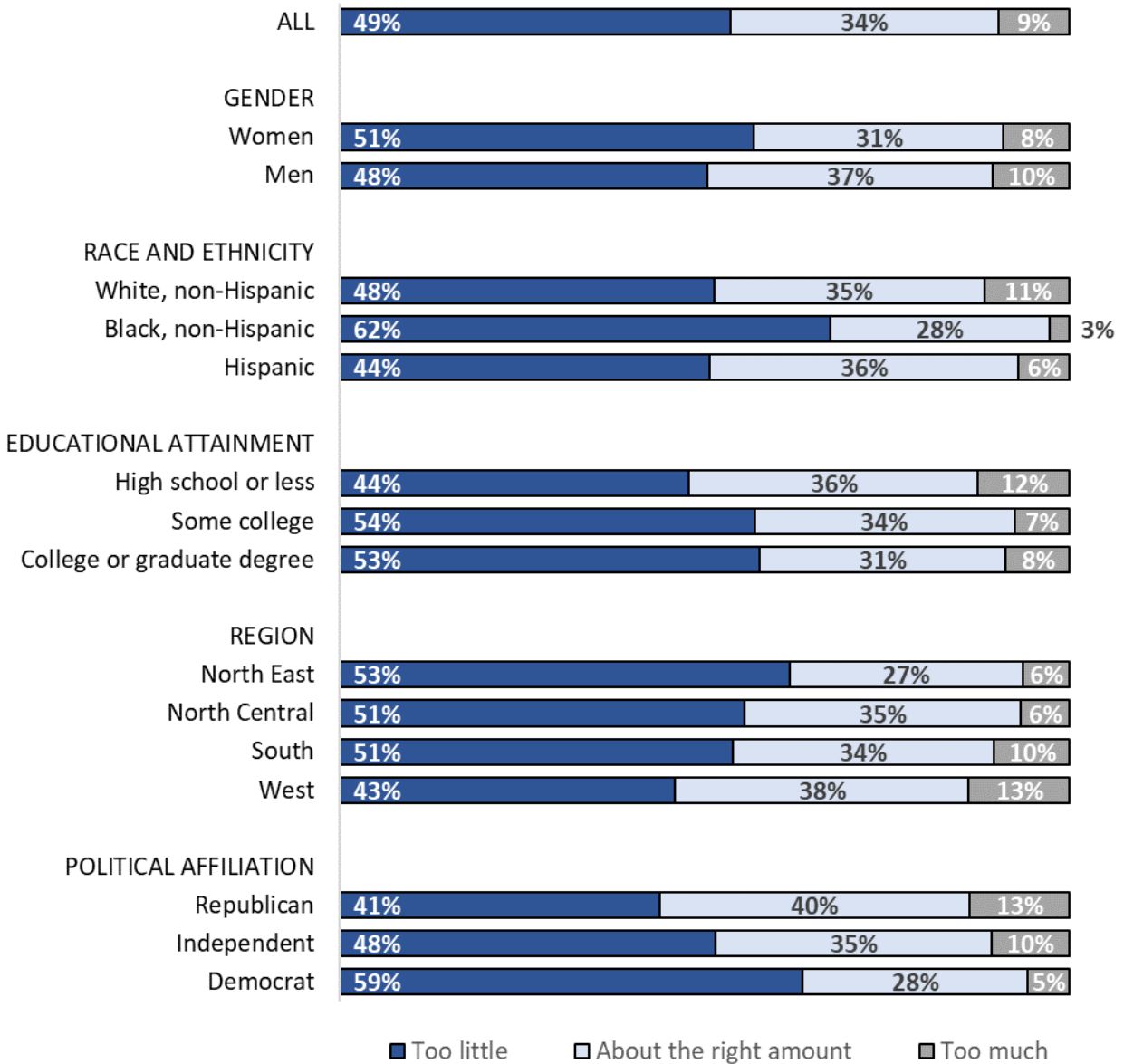
Like the nation as a whole, half of most groups of American adults feel that there are too few government regulations protecting water. African Americans are more likely to feel that the government is doing too little to protect water (61%), than are either Whites (48%) or Latinos (44%). A somewhat higher proportion of those with at least some college (53%) favor more government regulation to protect water, than is the case among those with a high school diploma or less education (44%).

Opinions differ even more markedly by political affiliation, with 59% of Democrats indicating that the government is doing too little, compared with 41% of Republicans. However, it is notable that, when coupled together, a strong majority of Republicans (over 80%), feel that the government is either doing “too little” (41%) or “about the right amount” (40%).

Like Republicans as a group, 13% of those living in western states feel that the federal government is doing too much to protect water; twice the proportion of those living in northeastern and north central states.

They are twice as common among women than men (10% compared to 5%); more than twice as common among Hispanics or Latinos as non-Hispanic Whites (14% and 6%); and more than twice as common among those living in northeastern states as among those living in southern and western states (14% and 6%).

Figure 3.5:
Opinions about federal government regulation of water vary by gender, race, education, region, and political affiliation



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
 Question: "Would you generally say there is too much, too little, or about the right amount of government regulation protecting water?"

Note: Percentages may not sum to 100 since "don't know" and "refused" responses are not shown. See appendix for definition of regions.

Concerns about affording water bills

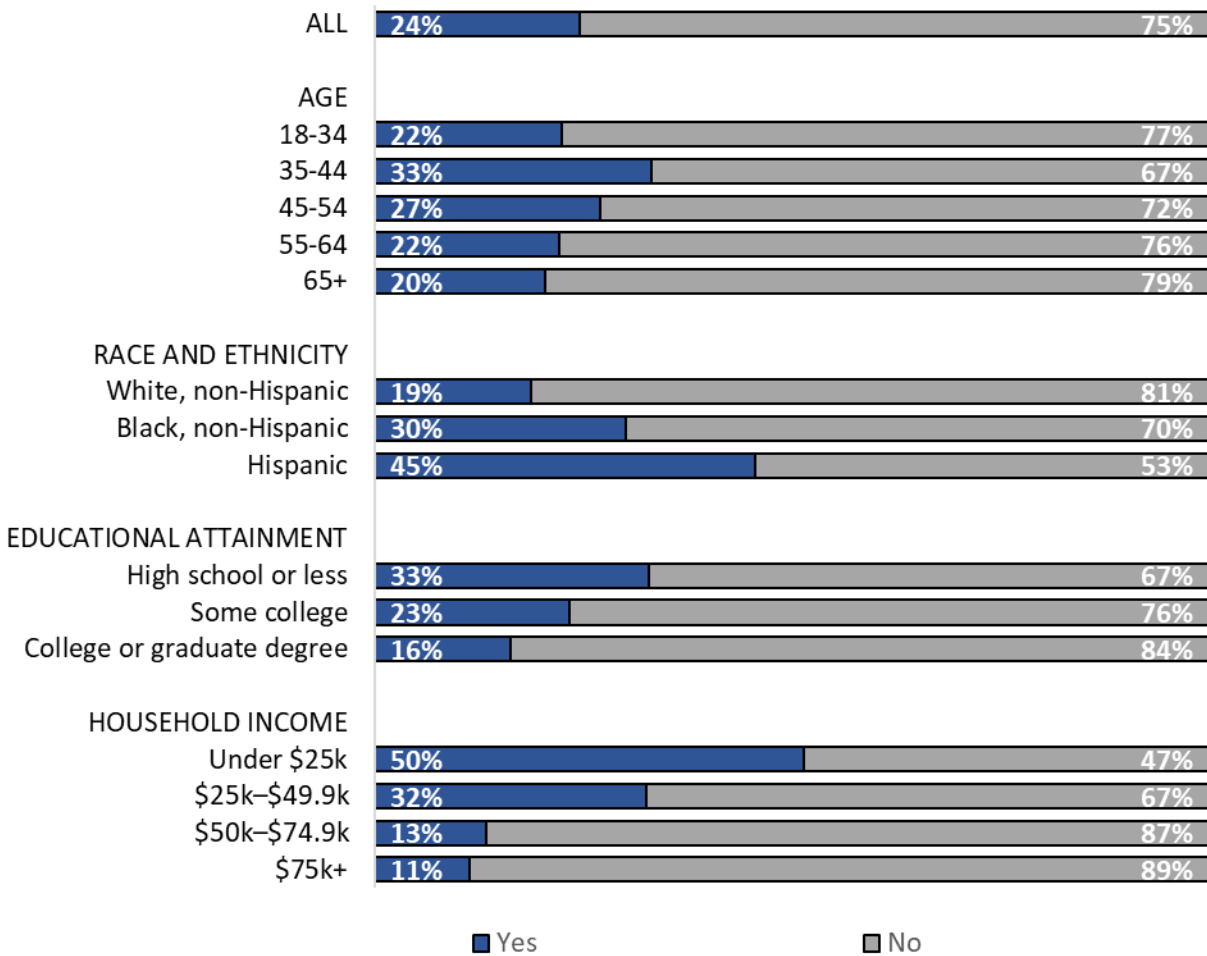
Worrying about whether you can afford to pay your water bill is among the most immediate and personal of water-related concerns. Not surprisingly, worries about water are strongly related to household income. Half of those from households with annual incomes under \$25,000 are worried about their ability to pay their water bills over the next two years, as are one-third of those from households with annual incomes between \$25,000 and \$50,000.

Still, even in this survey's highest income category, \$75,000 and up, more than 1 in every 10 households worries that they will be able to afford their water bills over the next two years.

Other groups with higher levels of concern about their water bills include Hispanics or Latinos, 45% of whom indicated concerns about being able to consistently pay their water bills over the next two years. One-third of those with only a high school diploma (or less) worry about paying their water bills, as do one-third of those in the 35 to 44 age group.

Surprisingly, a smaller proportion of the youngest adults, age 18 to 34, indicate worrying about paying their water bills than those age 35-54, even though the youngest age group tends to have lower incomes.

Figure 3.6: Worries about paying water bills varies by age, race, educational attainment, and especially household income



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019. Question: “Are you at all worried that you may not be able to afford your water bill at some time over next two years?”

Note: Percentages may not sum to 100 since “don’t know” and “refused” responses are not shown.

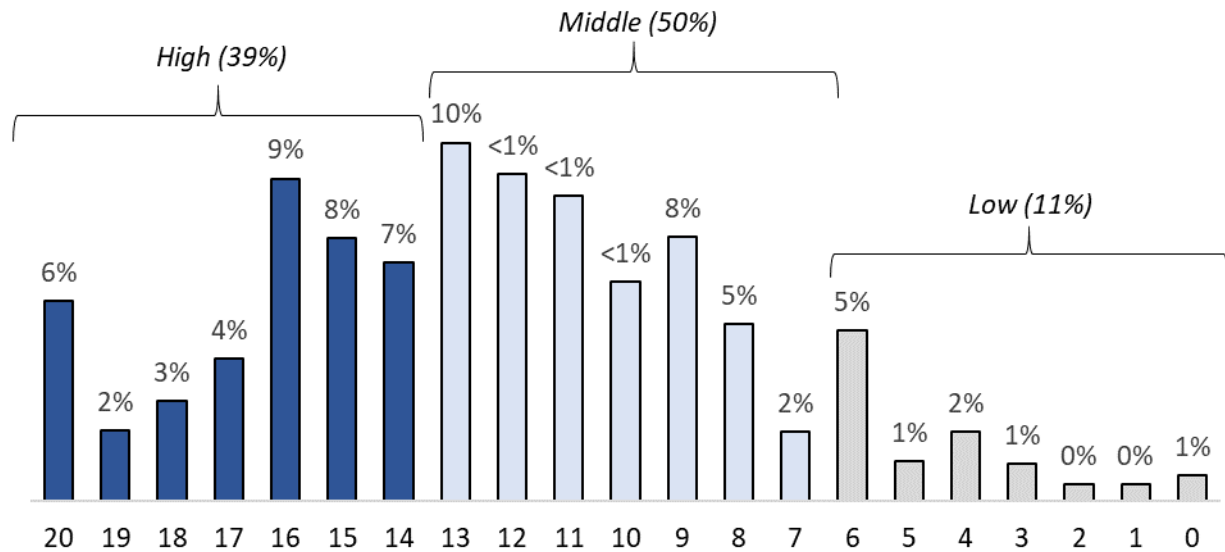
The Water Concern Scale

To provide a summary of overall concern about water we combined the answers to five questions in an additive scale, assigning respondents 0 to 4 points on each answer, as shown.

	<i>Assigned points</i>				
	4	3	2	1	0
How concerned are you about the future of America’s drinking water infrastructure, such as pipes, pumps, and treatment systems?	Very	Some-what	--	Not too	Not at all
How concerned are you about the future of America’s water resources, such as lakes, rivers, and streams?	Very	Some-what	--	Not too	Not at all
How much do you worry about the safety of drinking water from your tap at home?	A great deal	A fair amount	--	Only a little	Not at all
Would you generally say there is too much, too little, or about the right amount of government regulation protecting water?*	Too little		About the right amount		Too much
Are you at all worried that you may not be able to afford your water bill at some time over next two years?	Yes	--	--	--	No

Note: Responses of “don’t know” are assigned 0 points (except for (*), where “don’t know” is treated as missing); refusals are treated as missing values.

Figure 3.7:
Distribution of Water Concern Scale scores



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019. Note: Those refusing to answer any of the five questions that make up this scale are treated as missing (79 respondents overall). Percentages may not add to 100 due to rounding.

Out of a possible 20 points on the Water Concern Scale, the overall average score is 12.3 points, or 61% of the total possible. Additionally, when the total points of the scale are divided into 3 equal ranges, it is notable that half score in the “middle” range, while 39% score in the “high” range, and the remaining 11% score in the “low” range.

To see if there are any discernable patterns of concern for water among different groups of American adults, we then conducted a series of analyses comparing both the average scores and proportion in high, middle, and low categories.

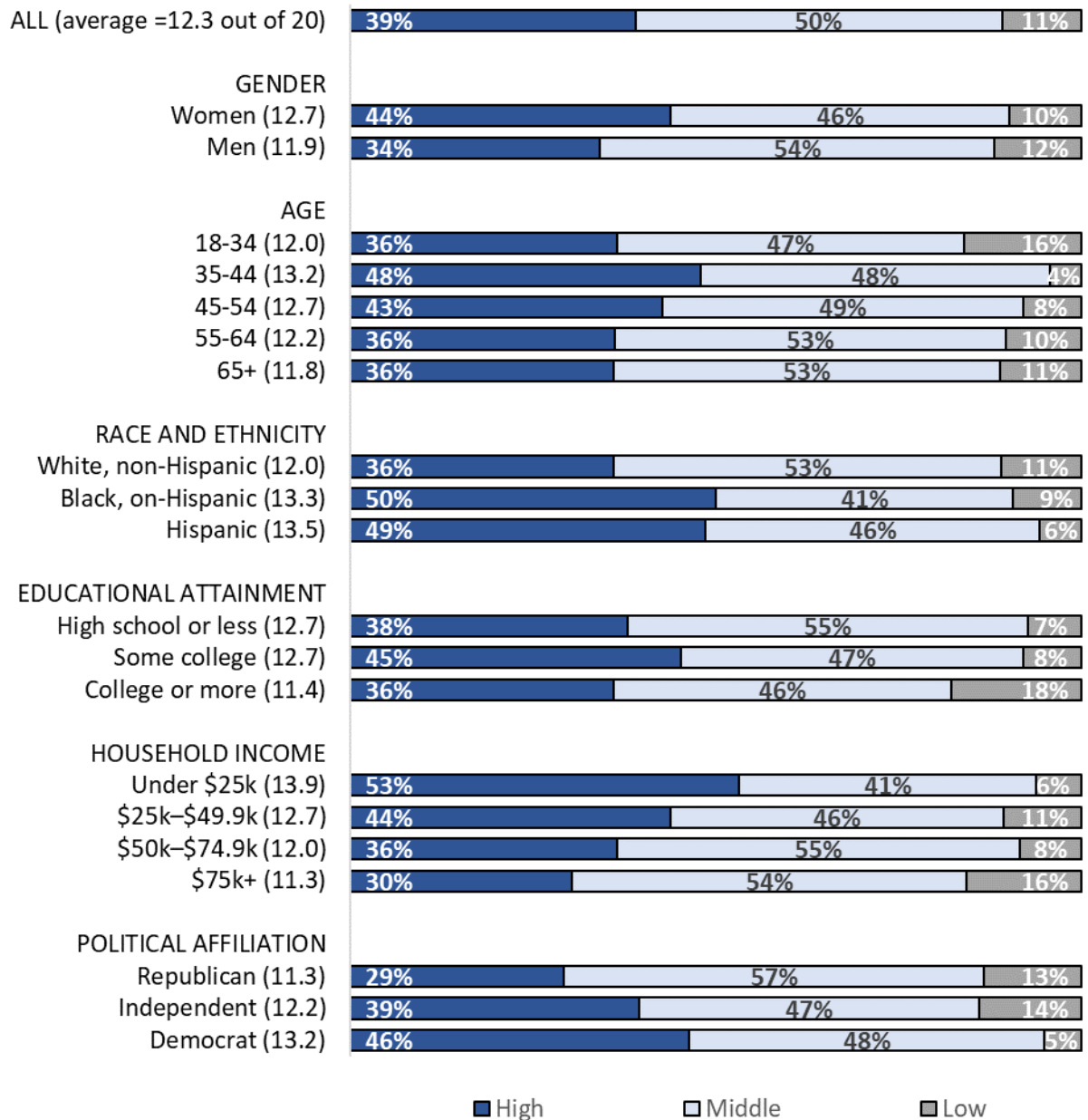
Those from lower income households tend to score higher on the Water Concern Scale than do those from higher income households; over half of those from households with annual incomes below \$25,000 scored in the high range. Similarly, half of both Black and Latino respondents score in the high range.

In terms of political affiliation, Democrats tend to score higher on the Water Concern Scale, averaging 13.2 out of 20 possible points. In comparison, independents average 12.2, and Republicans average 11.3.

Women tend to score higher than men on the Water Concern Scale.

Water Concern Scale scores do not differ significantly by parental status, metropolitan versus non-metropolitan residence, or by region of the nation (South, West, North East, and North Central).

Figure 3.8:
Women, those age 35 to 54, Blacks, Latinos, lower income households, and Democrats
tend to score higher on the Water Concern Scale



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
 Note: Those refusing to answer any of the five questions that make up this scale are treated as missing (79 respondents overall). Percentages may not add to 100 due to rounding.

ACTION

Actions may be thought of as the manifestation of knowledge, connection, and concern. In collaboration with the Water Main staff, we developed a short set of questions to help us better understand the relative prevalence of actions that Americans may take relative to water:

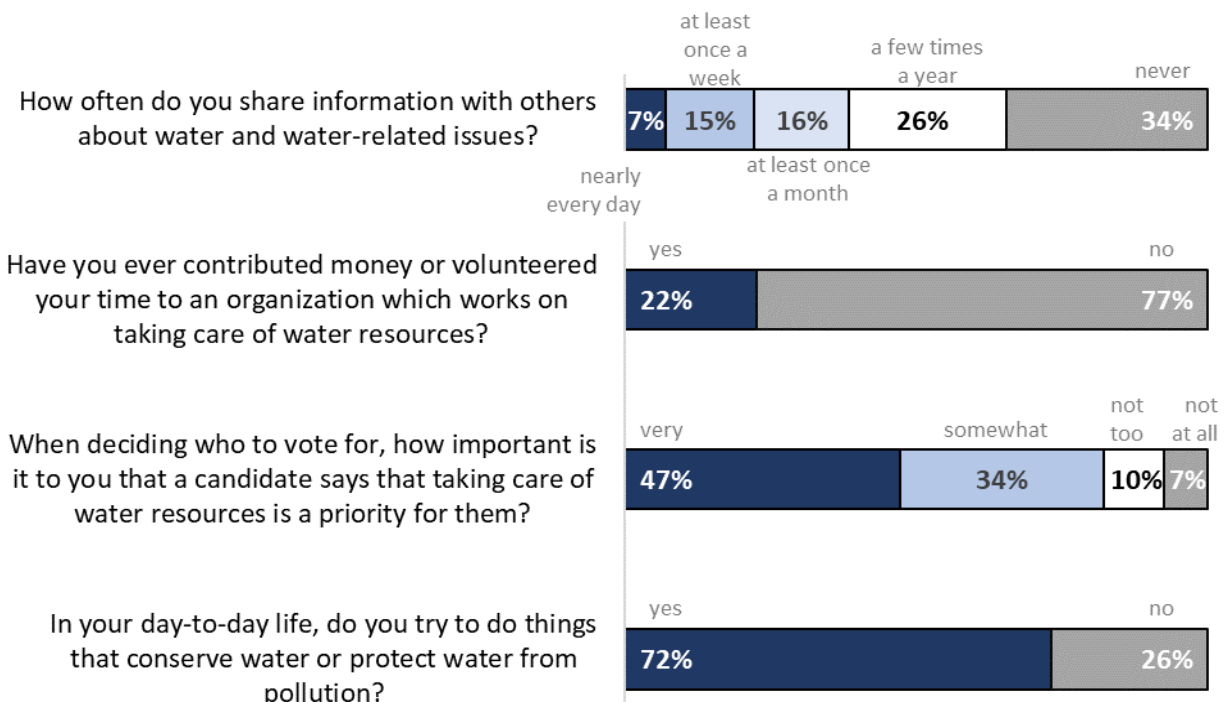
- How often do you share information with others about water and water-related issues?
- Have you ever contributed money or volunteered your time to an organization which works on taking care of water resources?
- When deciding whom to vote for, how important is it to you that a candidate says that taking care of water resources is a priority to his or her agenda?
- In your day-to-day life, do you try to do things that conserve water or protect water from pollution?

In addition, we asked an open-ended follow up to the last question.

- What is the most meaningful thing you do in your day-to-day life to save or protect water?

Respondents answered in their own words, which were later coded into categories for the purpose of analysis.

Figure 4.1:
Americans' likelihood and frequency of taking action to support water resources



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.

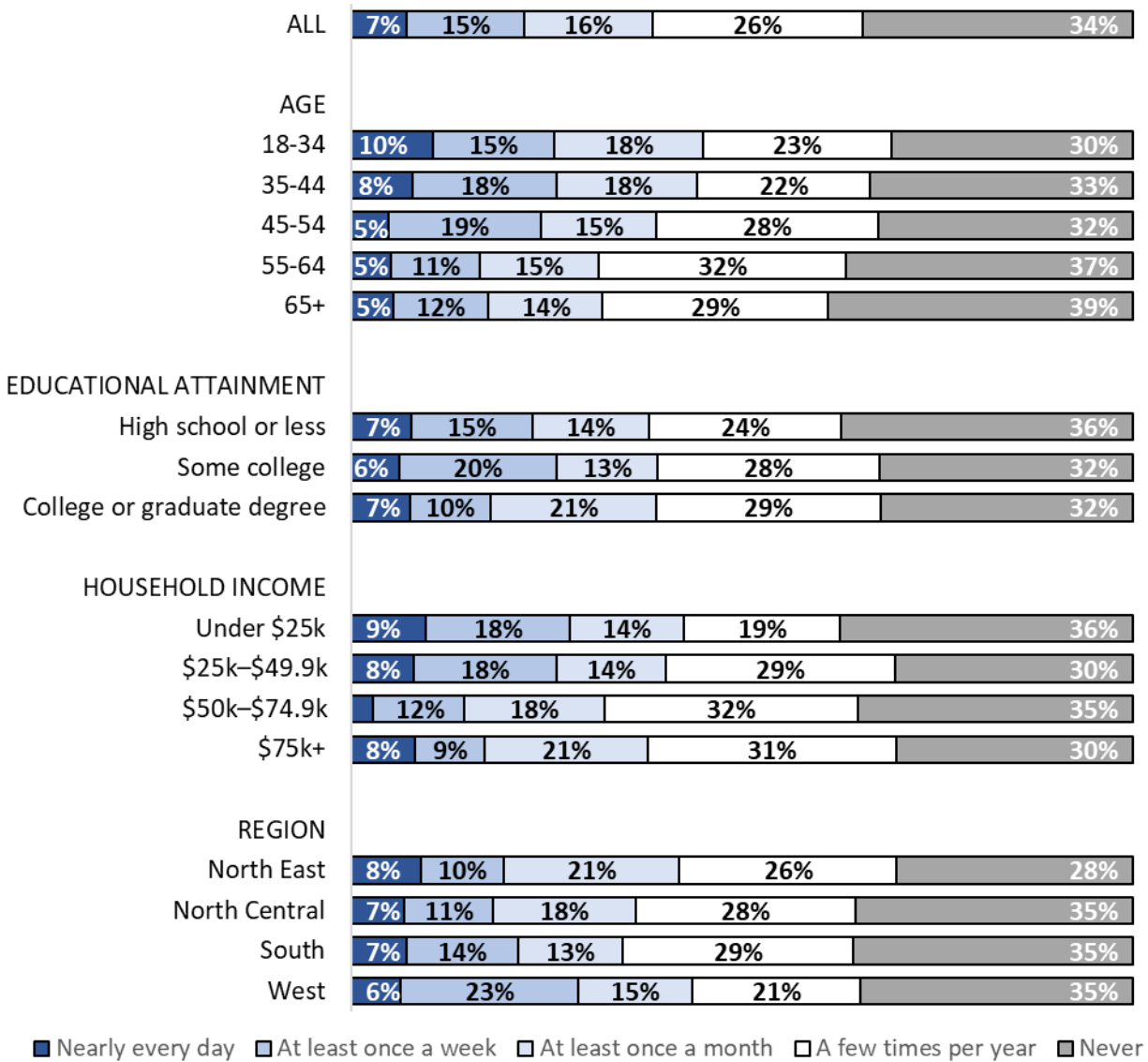
Note: Percentages may not sum to 100 since "don't know" and "refused" responses are not shown.

Sharing information

One-third of American adults never share information with others about water and water-related issues, but a slightly higher proportion (38%) do so once a month or more often. The proportion of adults who share water-related information does not vary substantially by group, meaning women and men, parents and non-parents, those from metro and non-metro regions, as well as Republicans, Democrats, and independents all share water related information at similar rates. There are, however, some differences by age, educational attainment, income, and region of the country.

For example, younger adults, age 18-34, are twice as likely as those age 45 and older to share information “nearly every day” (10% compared to 5%). A higher proportion of those with some college education share information once a week or more often than individuals who completed college degrees (26% compared to 17%). Middle-income Americans are less likely to share information than low-income Americans. Twenty-nine percent of those living in western states share water-related information with others at least weekly, compared with only 18% of those living in north central states.

Figure 4.2:
Frequency of sharing water-related information differs somewhat by age, educational attainment, income, and region



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
 Question: "How often do you share information with others about water and water-related issues?"
 Note: Percentages may not sum to 100 since "don't know" and "refused" responses are not shown. See appendix for definition of regions.

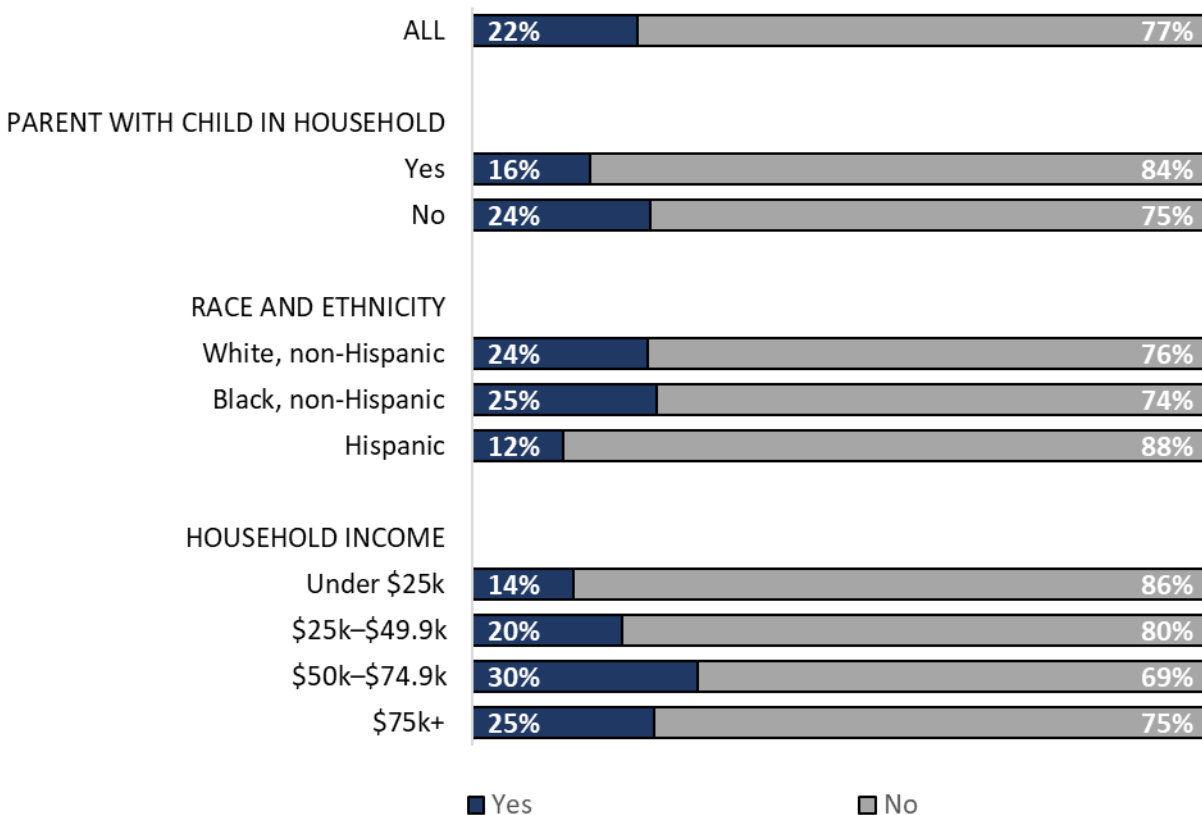
Contributing time or money

About 1 in 5 American adults report that they have contributed money or volunteered for an organization that works on taking care of water resources. That is true for both Republicans, Democrats, and independents alike. The proportion also is not notably different between women and men, or based on educational attainment, or where people live.

Those from higher income households are somewhat more likely to have contributed time or money to organizations that take care of water resources, as are Whites when compared to Latinos. Additionally, a somewhat higher proportion of those who are not raising children have contributed time or money than is the case for parents with children in their home.

Figure 4.3:

1 in 5 Americans report volunteering their time or contributing money to protection of water resources, with variation based on parental status, race, and income



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019. Question: “Have you ever contributed money or volunteered your time to an organization which works on taking care of water resources?”

Note: Percentages may not sum to 100 since “don’t know” and “refused” responses are not shown.

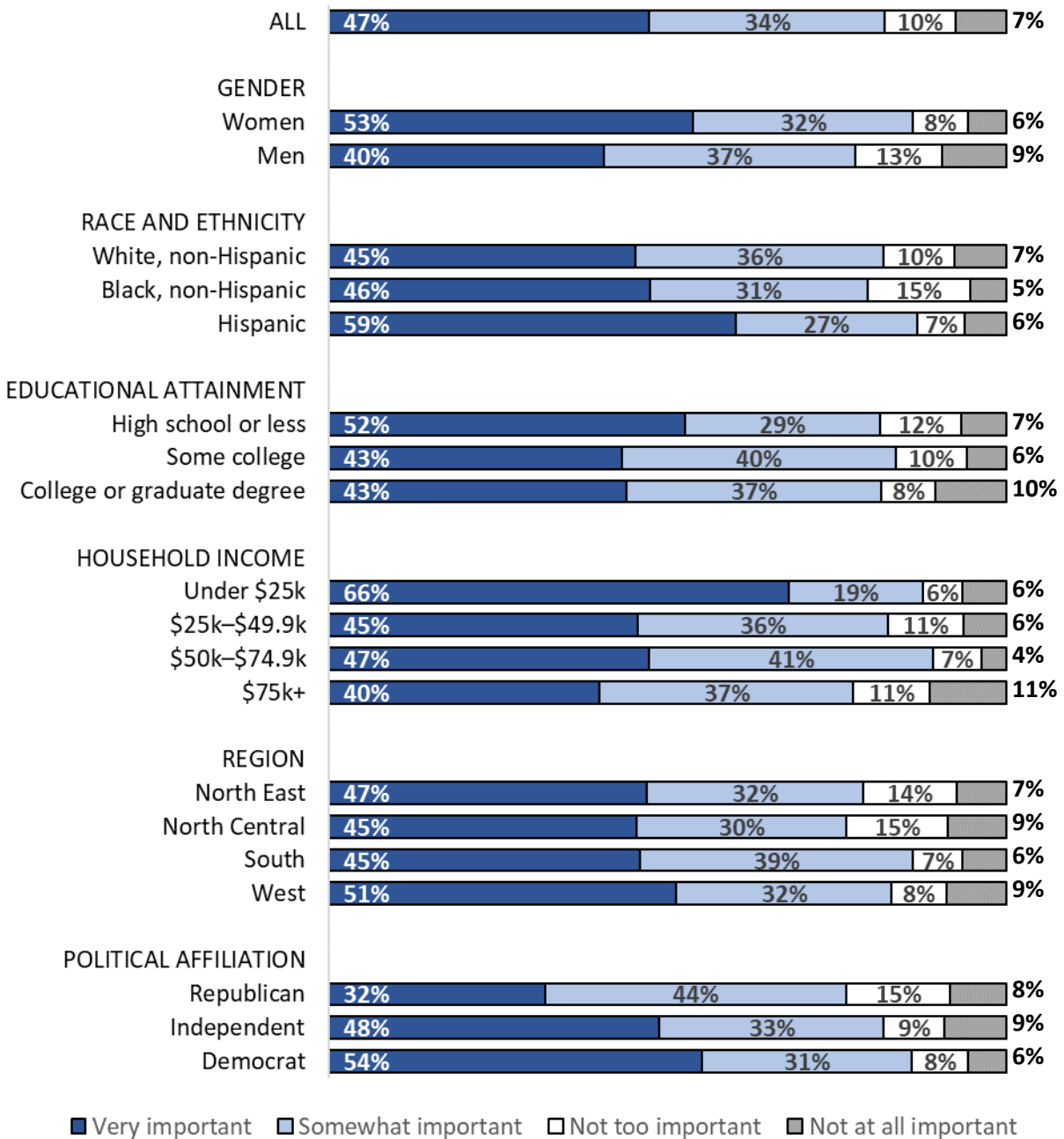
Voting

Nearly half of American adults indicate that when deciding whom to vote for, it is “very important” for a candidate to say that taking care of water resources is a priority. Another third say water “somewhat important” to their voting decisions.

Notably, water appears to be an especially meaningful voting issue among lower income households, with two-thirds of those from households with annual incomes below \$25,000 indicating that water is very important to their candidate preference. Additionally, over half of women, Latinos, those with high school education or less, and those from the western states say that a candidate’s position on water protection is very important to them.

Water appears to be a less critical issue for Republicans than either independents or Democrats, with the proportion indicating that water is “very important” to their vote at 32%, 48%, and 54%, respectively. Still, another 44% of Republicans indicate that taking care of water resources is “somewhat important” to their vote.

Figure 4.4:
Taking care of water resources is an important voting issue for most American adults; especially so for low-income Americans, Latinos, women, and Democrats



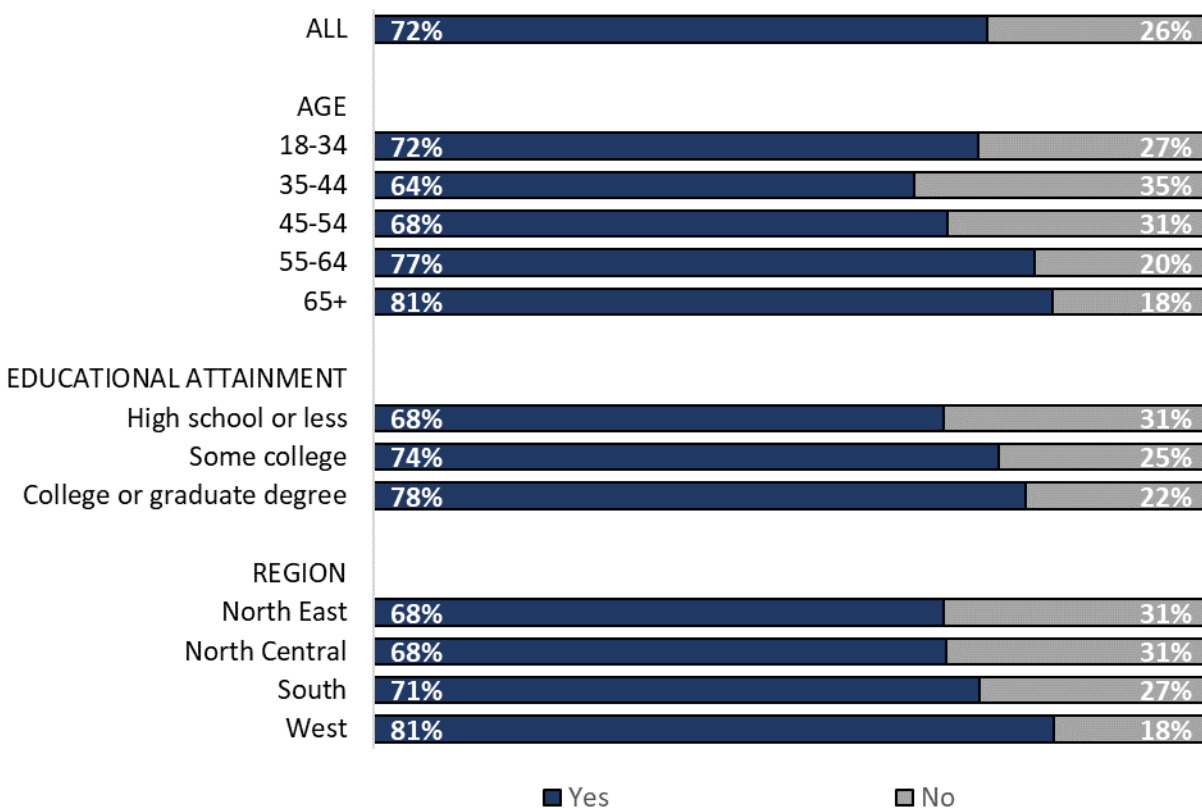
Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
 Question: “When deciding who to vote for, how important is it to you that a candidate says that taking care of water resources is a priority for them?”

Note: Percentages may not sum to 100 since “don’t know” and “refused” responses are not shown. See appendix for definition of regions.

Day-to-day conservation and protection of water

About seven in 10 American adults say that they do things in their daily lives to conserve or protect water. This is true regardless of gender, parental status, income, political affiliation, and whether living inside or outside of a metropolitan area. Somewhat higher proportions of older adults, college graduates, and those living in western states regularly do things to conserve or protect water.

Figure 4.5:
7 in 10 Americans are doing things to conserve or protect water on a daily basis, even higher proportions among older adults, college graduates, and those living in the West



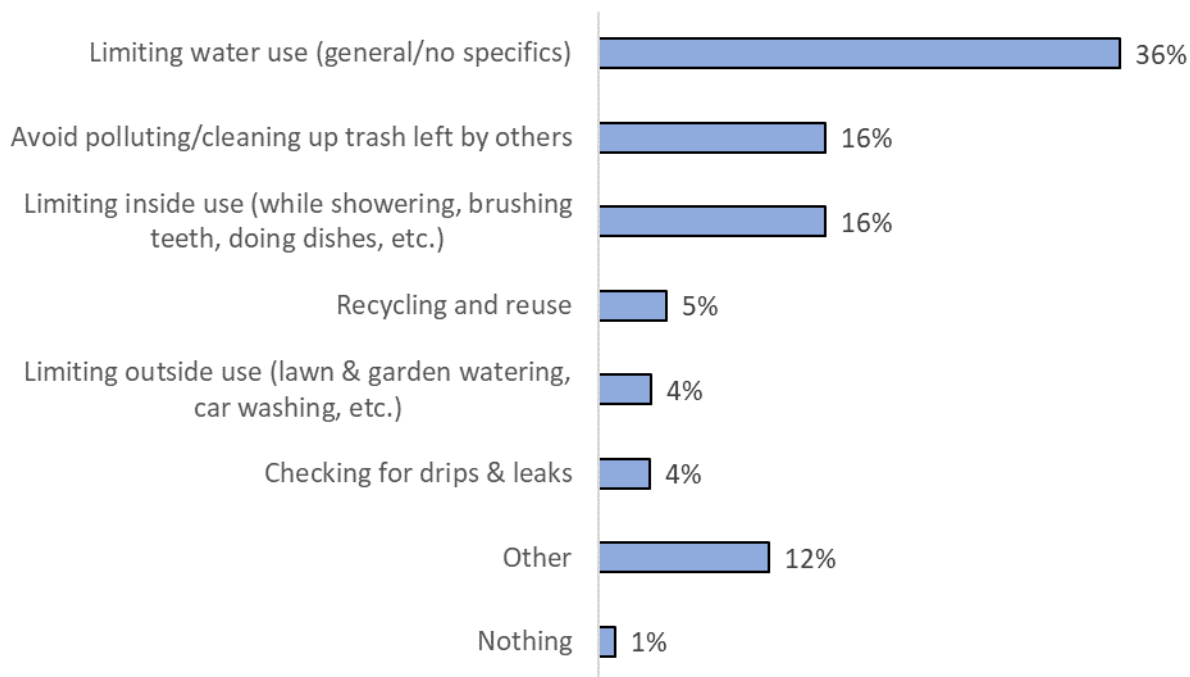
Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
 Question: "In your day-to-day life, do you try to do things that conserve water or protect water from pollution?"

Note: Percentages may not sum to 100 since "don't know" and "refused" responses are not shown. See appendix for definition of regions.

What Americans report doing in their daily lives to conserve and protect water

When those who say they are doing something to conserve or protect water are asked what they do to protect water, most indicate some form of limiting water use, either inside of their homes (16%), outside of their homes (4%), by fixing water leaks (4%), or without any further specification (36%). Others indicate that they are contributing by avoiding pollution or cleaning up trash left by others (16%).

Figure 4.6:
Actions American adults take to conserve water



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019. Question: “What is the most meaningful thing you do in your day-to-day life to save or protect water?” (asked of the 727 respondents who indicated that they do things in their daily lives to protect or conserve water).

Note: Percentages may not sum to 100 since “don’t know” and “refused” responses are not shown.

Some examples of the specific answers include:

“I bathe as fast as I can.” – 65-year-old woman from Massachusetts

“I am very conservative about brushing my teeth, I don’t really use water just the tooth paste.” – 21-year-old man from Rhode Island

“I use a full load instead of small loads in washing clothes.” – 73-year-old woman from Missouri

"I had my yard covered with rocks and I don't water my yard." – *94-year-old man from New Mexico*

"Guardar agua de la lluvia, no desperdiciar agua." (Save rainwater, do not waste water) – *39-year-old man from Missouri*

"I recycle plastic and don't flush the toilet too much." – *24-year-old man from Florida*

"I don't dump garbage on the ocean or streets since sooner or later it will end up on the ocean anyways." – *51-year-old man from California*

"I do not buy water bottles if I can bring my own bottle from home." – *23-year-old woman from Arizona*

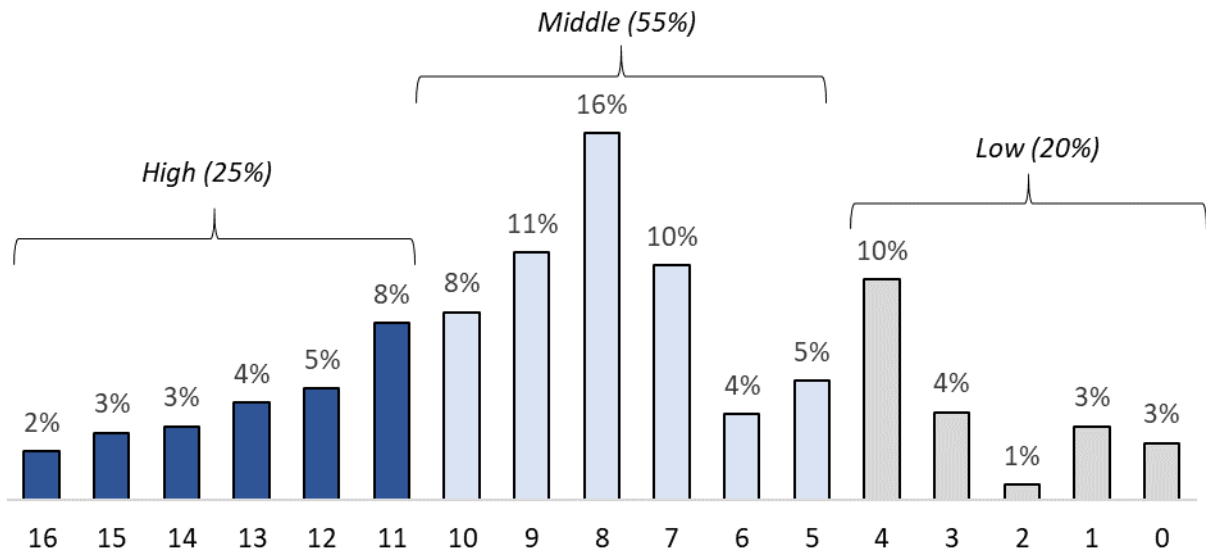
The Water Action Scale

To provide a summary of America’s overall action-orientation to water we combined the answers to the four action-related survey questions in an additive scale, assigning respondents 0 to 4 points on each answer, as shown.

	<i>Assigned points</i>				
	4	3	2	1	0
How often do you share information with others about water and water-related issues?	Nearly every day	At least once a week	At least once a month	A few times per year	Never
Have you ever contributed money or volunteered your time to an organization which works on taking care of water resources?	Yes	--	--	--	No
When deciding whom to vote for, how important is it to you that a candidate says that taking care of water resources is a priority to his or her agenda?	Very	Some-what	--	Not too	Not at all
In your day-to-day life, do you try to do things that conserve water or protect water from pollution?	Yes	--	--	--	No

Note: Responses of “don’t know” are assigned 0 points; refusals are treated as missing values.

Figure 4.7:
Distribution of Water Action Scale scores



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
Note: Those refusing to answer any of the five questions that make up this scale are treated as missing (4 respondents overall). Percentages may not add to 100 due to rounding.

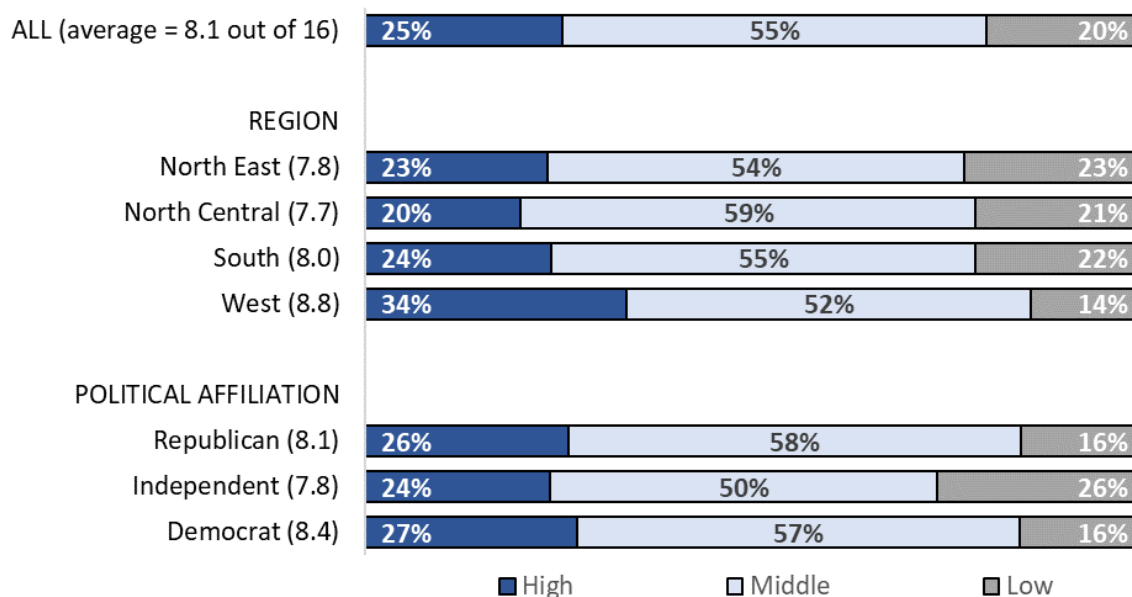
Out of a possible 16 points on the Water Action Scale, the overall average score is 8.1 points, or 51% of the total possible. Additionally, when the total points of the scale are divided into 3 roughly equal ranges, 55% score in the “middle” range, with 25% scoring in the “high” range, and the remaining 20% in the “low” range.

To see if there are any discernable patterns in the Water Action Scale among different groups of American adults, we then conducted a series of analyses comparing both the average scores and proportion in high, middle, and low categories. The only notable differences are shown in the graph: Residents of western states tend to score higher on the Water Action Scale than do residents of other regions of the country, with an average score of 8.8 on the 16-point scale and over one-third scoring in the “high” range, compared to less than one-quarter of those living in the other regions.

Political affiliation is also related to the Water Action Scale, but not in the way one might guess: self-identified Republicans and Democrats score very similarly on the scale. Political independents are the group that differs from the others, with a lower average scale score and 26% scoring in the low range, compared with 16% of both Republicans and Democrats.

None of the other characteristics we tested—neither women versus men, age grouping, parents compared with non-parents, differed racial groups, different levels of education, income groupings, or metropolitan versus non-metropolitan residence—and show significant differences in response patterns to the overall Water Action Scale.

Figure 4.8:
Residents of western states tend to score higher on the Water Action Scale; political independents tend to score lower than either Republicans or Democrats

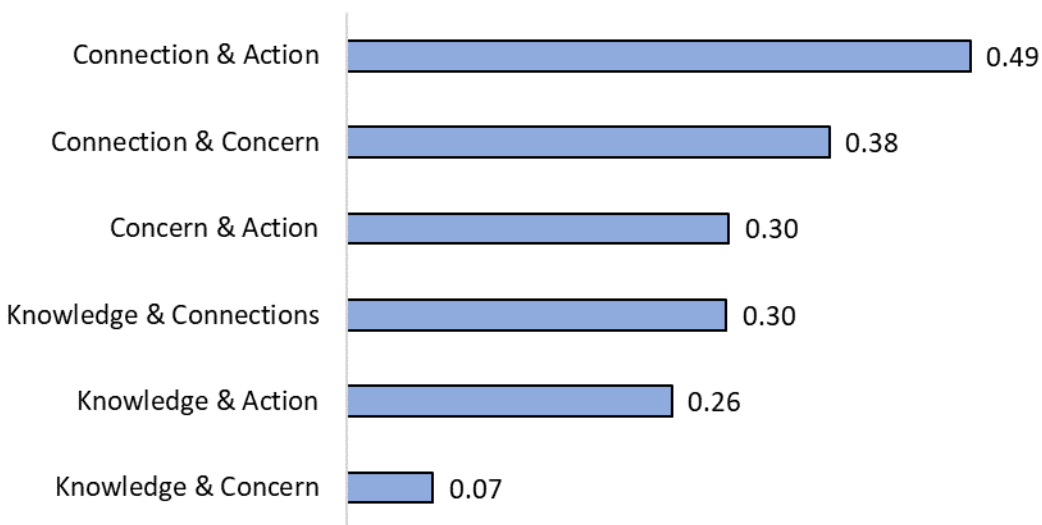


Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
Note: Those refusing to answer any of the five questions that make up this scale are treated as missing (4 respondents overall). Percentages may not add to 100 due to rounding. See appendix for definition of regions.

The relationship between Knowledge, Connection, Concern, and Action

Although the scales constructed in this report are primarily intended as summaries for the respective sections of the report we also ran some limited analyses to see how the scales relate to one another. A correlation analysis shows the strongest relationship between the Water Connection and Water Action scales, and moderate relationships between both the Water Concern and Water Knowledge scales and the Action scale. The Concern and Connection scales are also moderately correlated to one another, as are the Knowledge and Connection scales. The relationship between the Knowledge and Concern scales is the weakest among these correlations.

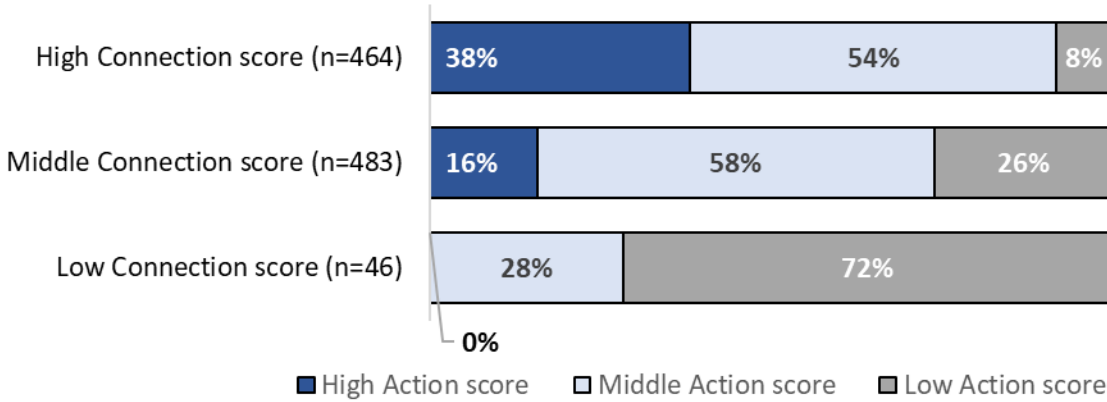
Figure 5.1:
Correlation is strongest between Water Connection and Water Action scales



*Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
Note: Figures represent correlation coefficients (Pearson’s R). All relationships are statistically significant at the 0.01 level, except the relationship between the Knowledge and Concern scales, which is significant at 0.05 (one-tailed tests). See earlier sections for details on the construction of the scales.*

Another way of depicting the relationships between the scale scores is to cross-tabulate the scales once each is grouped into high, middle, and low score ranges. When we do so for the Water Connection and Water Action scales, we see that 38% those who receive a “high” Water Connection score also receive a “high” Water Action score. This compares to 16% of those with middle Water Connection scores, and none of those with low Water Connection scores. A strong majority of those with low Water Connection scores (72%) also score “low” on the Water Action scale.

Figure 5.2:
Those with high Water Connection Scale scores tend to score higher on the Water Action Scale



Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.
 Note: See earlier sections for details on the construction of the scales.

Appendix: Sample characteristics

	Unweighted		Weighted	
	N	Percent	N	Percent
ALL	1,005	100%	1,005	100%
Gender				
Women	430	43%	517	51%
Men	575	57%	488	49%
Age				
18-34	209	21%	282	28%
35-44	158	16%	167	17%
45-54	161	16%	172	17%
55-64	154	15%	157	16%
65+	306	30%	207	21%
Refused/don't know	17	2%	20	2%
Parent with child in household				
Yes	172	17%	200	20%
No	832	83%	805	80%
Race/ethnicity				
White, non-Hispanic	721	72%	628	62%
Black, non-Hispanic	88	9%	116	12%
Hispanic	111	11%	162	16%
Other, non-Hispanic	64	6%	82	8%
Refused/don't know	21	2%	18	2%
Educational attainment				
High school or less	309	31%	388	39%
Some college	335	33%	280	28%
College or graduate degree	351	35%	322	32%
Refused/don't know	10	1%	15	2%
Household income				
Under \$25k	138	14%	139	14%
\$25k-\$49.9k	292	29%	287	29%
\$50k-\$74.9k	115	11%	111	11%
\$75k+	268	27%	248	25%
Refused/don't know	192	19%	219	22%

(continued, next page)

	Unweighted		Weighted	
	N	Percent	N	Percent
Region ^a				
North East	185	18%	179	18%
North Central	231	23%	210	21%
South	354	35%	378	38%
West	235	23%	239	24%
Metropolitan status ^b				
Metropolitan	704	70%	686	68%
Non-metropolitan	192	19%	174	17%
Unknown	109	11%	145	14%
Political affiliation				
Republican	291	29%	269	27%
Independent	352	35%	358	36%
Democrat	321	32%	330	33%
Other/refused/don't know	41	4%	48	5%

Source: APM Research Lab | Water Main survey of 1,005 American adults, conducted May 7-12, 2019.

^a **North Central:** Iowa, Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, North Dakota, Nebraska, Ohio, South Dakota, Wisconsin. **North East:** Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont. **South:** Alabama, Arkansas, Washington DC, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia. **West:** Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, Wyoming.

^b “Metropolitan” and “Non-metropolitan” are designated using the Federal Office of Management and Budget’s standard Metropolitan Area definitions.

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