

DROUGHT AND ENVIRONMENTAL OPINION A STUDY OF ATTITUDES TOWARD WATER POLICY

BRADFORD H. BISHOP*

Abstract Previous research into place effects has provided mixed evidence about the effect of geography on public opinion. Much of the work finding a relationship is susceptible to methodological criticisms of spuriousness or endogeneity. In this paper, I leverage a unique research design to examine the influence of residential setting on environmental attitudes regarding water use. The findings indicate that local drought conditions increase individuals' level of concern about the nation's water supply. In addition, drought conditions are related to public attitudes toward water use regulation, with those living in drought-afflicted counties more likely to support government regulation. This study provides a firm foundation for research attempting to demonstrate that local conditions have a causal effect on public opinion.

Does where one lives influence how one thinks about politics? Research into the role of personal experiences in opinion formation has provided surprisingly mixed answers (e.g., [Sears and Funk 1991](#)). Public opinion scholars have long observed that ordinary individuals' policy views are rarely determined by their own direct experiences, since most people do not connect their own personal circumstances to abstract, generalized patterns ([Lane 1962](#)). Even the most well-informed individuals, whose policy preferences are most likely to be informed by their own experiences, are less likely to generalize from these experiences to the national context ([Mutz 1993](#)).

BRADFORD H. BISHOP is an assistant professor in the Department of Political Science and the Institute for the Study of the Environment, Sustainability, and Energy at Northern Illinois University, DeKalb, IL, USA. This work was supported by the Program for the Study of Democracy, Institutions, and Political Economy at Duke University. The author thanks D. Sunshine Hillygus, David Konisky, Justin Tucker, four anonymous reviewers, and participants in the Political Institutions and Public Choice (PIPC) Program at Duke University for comments on earlier drafts of this paper. *Address correspondence to Bradford H. Bishop, Northern Illinois University, Department of Political Science, 415 Zulauf Hall, DeKalb, IL 60115, USA; e-mail: bbishop@niu.edu.

Despite this skepticism about relationships between personal experiences and public opinion, recent scholarship has uncovered evidence that local context can influence policy opinions. Research has connected variation in local real estate values to presidential approval and voting behavior (Cho and Gimpel 2009; Hill, Herron, and Lewis 2010). In his study of the “politicized places” thesis, Hopkins (2010) finds a relationship between local immigration patterns and opinions about immigration policy. This developing line of research offers persuasive evidence that citizens incorporate information they acquire at the local level when thinking about public policy.

With respect to environmental attitudes, however, most research finds that local conditions exert little influence, perhaps because of the strong partisan and ideological basis for these views (Dunlap, Xiao, and McCright 2001). Arguably the most extensive study of the influence of local factors on environmental opinion is Smith (2002), who found little evidence that proximity to pollution risks leads to higher levels of support for environmental protection. Likewise, research has failed to find support for the NIMBY (“not in my backyard”) syndrome in public opinion on energy policy (Michaud, Carlisle, and Smith 2008). Where relationships between local factors and environmental opinion have been found, these effects tend to be highly localized and in response to severe forms of pollution (e.g., Adeola 2000; Gill, Picou, and Ritchie 2012).

A major research design problem afflicts much existing work on environmental proximity effects (e.g., Whitmarsh 2008; Hamilton, Colocousis, and Duncan 2010). Such studies tend to analyze covariation between semi-permanent structural factors and environmental attitudes, but these factors may directly or indirectly influence people’s decisions about where to live in the first place. In a world where individuals were sorted into residential settings entirely at random, statistical relationships between geographic proximity to pollution and opposition to polluting economic activities would provide persuasive evidence of a causal relationship. Unfortunately for researchers, choice of residence is likely influenced by factors that are predictive of support for environmentalism, such as partisan attitudes or occupational choice (Bishop and Cushing 2009). Thus, evidence of association between place characteristics and support for environmental regulation may be spurious, as scholars falsely conclude that residence influences opinion when an unmeasured third variable influences both choice of residence and policy attitude.

In an analysis of global warming attitudes responding in part to these threats to inference, Egan and Mullin (2012) found that individuals whose recent weather had been unusually warm were more likely to believe in the existence of climate change, while those who were exposed to unseasonably cold weather were more skeptical about global warming. This result may arise due to recent physical encounters with extreme heat and cold. In a series of experiments that manipulated temperature conditions prior to administering survey questions about climate change, Risen and Critcher (2011) found that warmer

temperatures increased subjects' likelihood of believing that global warming is occurring.

The Impact of Drought on Environmental Policy Opinion

This study leverages a naturally assigned “treatment” (drought) to investigate whether the context of place influences public opinion on an environmental policy issue of considerable salience (Konisky, Milyo, and Richardson 2008). An important advantage of this approach is that inferential threats from endogeneity and spuriousness are reduced, since it is unlikely that the choice of residence is systematically related to the recent experience of drought. Thus, drought provides an unusually clean test for environmental place effects.

Attitudes toward water policy are increasingly important in American politics, as growing demand on local water resources by an expanding population has left many parts of the country particularly vulnerable to drought (Mullin 2009). Among the many areas of public policy affected by environmental considerations, government efforts to protect the quality and supply of community drinking water are already regularly rated as a top priority by the American public. Seventy-five percent of respondents to a March 2011 Gallup poll reported a great deal or a fair amount of concern about water availability, an aggregate level of concern more acute than virtually all competing environmental threats (Saad 2011).

In addition to the pure theoretical basis for expecting a relationship between personal experiences and environmental policy attitudes set forth above, there are a number of reasons to expect that drought conditions, in particular, will shape attitudes toward water regulation.

First, drought may influence opinion through both indirect and direct means. For instance, when a place is afflicted by drought, the local media are more likely to draw attention to the issue. Previous research has found that individuals are more likely to rely on personal experiences to form political judgments when prompted to do so by the mass media (Mutz 1994). Thus, even if the effects of drought are not noticeable to the ordinary citizen, it is possible that individuals' attitudes could be influenced by exposure to the local news.

Second, drought is typically experienced over a relatively wide geographic area and its effects are noticeable; when an area is afflicted by drought, traces of its presence are visible to individuals—green grass becomes brown grass, trees lose their leaves, and creeks run dry. Previous searches for local influences on environmental opinion have often focused on the threat of pollution rather than physical exposure to environmental problems (Smith 2002; Michaud, Carlisle, and Smith 2008). Firsthand encounters with an actual environmental predicament may be jarring enough to produce measurable place effects, while exposure to hypothetical pollution risks may not.

Third, unlike other forms of environmental malaise, solutions to drought problems do not necessarily threaten local economic interests. One plausible reason why residential proximity to pollution does not seem to provoke widespread NIMBYism is that local pollution is often caused by industries that supply jobs and economic opportunity. Publicly imposed restrictions on water use may cause nuisances for people, but these regulations do not threaten diminished economic activity in the same way that new regulations on off-shore oil drilling might.

For these reasons, drought is expected to increase concern about the water supply, and to increase individuals' likelihood of supporting government action designed to regulate water use.

Data and Measurement

Two dimensions of public opinion on water policy are analyzed in this study. First, to study concern about water availability, I examine three Gallup surveys from March 2008, 2009, and 2010.¹ These surveys included an item that asked respondents whether they are concerned about "maintenance of the nation's supply of fresh water for household needs," with the level of worry captured by four ordinal response categories ("not at all," "only a little," "a fair amount," and "a great deal").²

Second, I examine support for the government restricting water use in the 2010 Cooperative Congressional Election Study (CCES).³ An item asked

1. The Gallup surveys were administered by telephone to a sample of U.S. adults living in households. Respondents were contacted using random-digit dialing and were selected using the latest-birthday method. Using the AAPOR-III calculation, the response rate was 12 percent in the 2008 survey, 11 percent in the 2009 survey, and 10 percent in the 2010 survey. See the appendix for details.

2. The question wording for this item was "I'm going to read you a list of environmental problems. As I read each one, please tell me if you personally worry about this problem a great deal, a fair amount, only a little, or not at all. First, how much do you personally worry about... [maintenance of the nation's supply of fresh water for household needs]." Response options included "a great deal," "a fair amount," "only a little," "not at all," and "don't know."

3. The 2010 CCES was administered to a 30,000-person national stratified sample and included items surveying political attitudes during that year's congressional election cycle. Respondents completed pre-election surveys in September or October, and subjects were interviewed a second time during November, after the election results were known. All respondents answered a series of common content questions, but were then randomly assigned to topical modules such as the one employed in this study.

The 2010 CCES was administered online to a target population of U.S. adults. The sample drawn for the CCES was chosen from the YouGov/Polimetrix PollingPoint Panel and the E-Rewards and Western Wats panels using a five-way cross-classification (age x gender x race x education x state). All respondents who completed the pre-election survey were reinterviewed in the post-election survey. The final set of completed pre-election interviews were then matched to the target frame, using a weighted Euclidean distances metric. Using the AAPOR-III calculation, the response rate was 41.8 percent for the survey of panel members. No overall response rate can be calculated due to the way the panels were recruited. For more information on the sampling methodology employed by the CCES, see <http://projects.iq.harvard.edu/cces/book/study-design>.

respondents: “Thinking about the issue of water conservation, do you favor or oppose government regulations that restrict water use in order to preserve the water supply?” Responses ranged from “strongly oppose” to “strongly favor,” with intermediate agreement and disagreement categories. Those who responded “don’t know” (9 percent) were dropped from the analysis. The question was preceded by two experimental treatments, neither of which was associated with significantly different levels of support for regulation. In the multivariate analysis that follows, I include dummy variables to control for the treatments. Interactions between these treatments and several key independent variables are analyzed in greater detail in the online appendix.⁴

Measuring Drought

As noted above, a key advantage of the present research design is the natural assignment of survey respondents to drought-afflicted and non-drought conditions in a manner that is potentially independent of demographic and attitudinal characteristics. Below, I investigate this feature of the present research design empirically by comparing respondent attributes on several important demographic variables.

To measure drought, data were collected from the United States Drought Monitor (USDM), which is a categorical indicator of local drought conditions. The USDM accounts for the climate characteristics unique to different geographical regions because it combines multiple indices and relies on local experts to produce a composite measure. The index is updated each week, and historical data are available to the public ([United States Drought Monitor 2012](#)). I generated an indicator variable to capture the presence of drought at the time a subject was interviewed. A measure of drought persistence was also produced, which counts the number of months a respondent experienced drought in the three years prior to being interviewed.⁵

Table 1 compares partisan and demographic characteristics of citizens based on drought exposure. The upper half of the table presents a comparison of respondents

4. The question included two treatment conditions in addition to a control group that were intended to explore the mechanism by which drought affects attitudes toward water policy. The first treatment condition informed respondents: “Thinking about the issue of water conservation, a recent study found that [Local] County may face water shortages in coming years. Do you favor or oppose government regulations that restrict water use in order to preserve the water supply?” The respondents’ local county name was inserted into the [Local] bracket. The second treatment informed respondents: “Thinking about the issue of water conservation, a recent survey found that many [Local] County residents support government regulation to maintain the size of the local water supply. Do you favor or oppose government regulations that restrict water use in order to preserve the water supply?” A control group was asked, “Thinking about the issue of water conservation, do you favor or oppose government regulations that restrict water use in order to preserve the water supply?” Response options included “strongly oppose,” “somewhat oppose,” “somewhat favor,” “strongly support,” and “I’m not sure.” There is some evidence of an interaction effect between drought exposure and the survey experiments. I review these effects in the online appendix.

5. Measurement details for both variables can be found in the online appendix.

to Gallup’s concern item (2008–2010). The bottom half compares respondents to the CCES in November 2010. Looking across the rows of [table 1](#), we see that respondents sampled from counties affected by drought were somewhat more Republican and somewhat less Democratic than those sampled from counties not experiencing drought conditions. Demographically, there are only minor differences between the populations sampled from counties experiencing drought and non-drought counties. Thus, drought conditions during the period of the study present a valid test of contextual effects, since the places afflicted by drought are demographically unremarkable and would ordinarily be expected to reflect a slight preference for the anti-regulatory views associated with the Republican Party.

Table 1. Demographic Comparisons of Sampled Respondents (Gallup/CCES)

Respondent characteristic	Drought counties	Non-drought counties	Difference
Gallup comparison			
Republican %	43.8 (1.3)	39.0 (1.2)	4.8* (1.8)
Democrat %	46.7 (1.4)	50.4 (1.2)	−3.6* (1.8)
Household income	2.15 (.02)	2.13 (.02)	.01 (.03)
Educational attainment	2.39 (.59)	2.35 (.57)	.04 (.02)
Age	53.5 (.5)	52.5 (.4)	1.0 (.6)
Female %	48.4 (1.4)	48.1 (1.2)	.3 (1.8)
CCES comparison			
Republican %	50.3 (3.6)	42.8 (1.7)	7.5* (4.0)
Democrat %	37.7 (3.5)	44.6 (1.8)	−6.9* (3.9)
Household Income	7.8 (.3)	8.4 (.1)	−.6* (.3)
Educational Attainment	3.8 (.1)	3.9 (.1)	−.1 (.1)
Age	52.5 (1.0)	52.0 (.5)	.5 (1.2)
Female %	49.7 (3.6)	49.4 (1.8)	.3 (4.0)

NOTE.—Standard error of the mean (or the difference) in parentheses.
*indicates statistically significant difference of $p < .05$ using a mean comparison test (for binary variables), or an unpaired t -test (for categorical variables).

Results

This section reports results of a multivariate analysis predicting concern about water availability, followed by a separate model predicting support for government restrictions on water use. The dependent variables analyzed below are ordinal variables of four categories, so the models are estimated using ordered logit. A range of individual-level covariates are included in the models to hold respondent demographics and political predispositions constant. Controls are included for climate change attitudes, using scales assessing whether respondents believe global warming is real and will present problems for the future. Other covariates include party identification, self-reported ideology, age, education, income, and female gender. The key independent variables are the county-level drought measures.⁶

Estimates for three separate models predicting concern about water availability are presented in [table 2](#). Previous research has found mixed evidence for the relationship between gender and environmental concern (e.g., [Davidson and Freudenburg 1996](#); [Bord and O'Connor 1997](#)), but the coefficient for female gender is positive in all models reported on [table 2](#), which indicates that women are more likely to express concern about water availability.

The coefficient for age is positive and significantly different from zero; this result suggests that older respondents tend to be more concerned about water availability. These findings contradict the negative relationship between age and numerous dimensions of environmental concern observed elsewhere ([Klineberg, McKeever, and Rothenbach 1998](#)). Meanwhile, income and education are negatively related to concern about the nation's water supply.

The model provides mixed evidence for the influence of partisanship and ideology on concern. Republican self-identification is related to lower levels of concern about water availability, while Democratic identifiers were more likely to express concern. Ideology was not a significant predictor of concern.

Perceptions about the future consequences of climate change were strongly related to concern about water availability. Global-warming believers were considerably more concerned about water availability than those who believe climate change will “not happen.”

In addition to the established partisan, ideological, and demographic sources of environmental concern, the models present consistent evidence of contextual influences on concern. As is evident from the coefficient estimates reported in [table 2](#), both drought variables are positive and statistically significant. Holding demographic and attitudinal variables constant, the presence and persistence of drought are predictive of concern about the nation's water supply.⁷

6. Question wordings and variable codings can be found in the online appendix.

7. I explored alternative specifications for this model. For instance, I recoded the concern variable as a binary dependent variable, and estimated a random effects (by year) logit model, removing the year-level dummy variables. Estimates of the coefficient for the drought variable using this equation were comparable in magnitude and statistically significant. I also estimated a comparable model using random state-level effects, and obtained a virtually identical coefficient estimate for the drought variables.

Table 2. Models Predicting Concern about Water Availability

Variable	Both drought variables	Long-term	Immediate
Party ID (D = -1, I = 0, R = 1)	-.238* (.055)	-.238* (.055)	-.233* (.054)
Ideology (Lib = -1, Mod = 0, Cons = 1)	-.015 (.057)	-.015 (.057)	-.014 (.057)
Climate change (Already = -2; Never = 2)	-.244* (.026)	-.242* (.026)	-.245* (.026)
Drought persistence	.008* (.005)	.013* (.004)	—
Current drought	.169* (.088)	—	.251* (.075)
Female	.143* (.077)	.147* (.077)	.141* (.077)
Education	-.129* (.071)	-.125* (.071)	-.130 (.071)
Income	-.328* (.056)	-.327* (.056)	-.328* (.056)
Age	.007* (.002)	.007* (.002)	.007* (.002)
2008	.152* (.092)	.154* (.092)	.150* (.092)
2009	.190* (.092)	.186* (.092)	.196* (.092)
Cut 1	-2.713* (.215)	-2.703* (.215)	-2.811* (.208)
Cut 2	-1.214* (.205)	-1.206* (.205)	-1.314* (.198)
Cut 3	.293 (.203)	.299 (.203)	.192 (.196)
N	2,679	2,679	2,679
Pseudo R ²	.045	.045	.044

NOTE.—Cell entries represent coefficients for ordered logit models estimated by maximum likelihood. The dependent variable is a survey item administered by the Gallup Organization, worded as follows: “I’m going to read you a list of environmental problems. As I read each one, please tell me if you personally worry about this problem a great deal, a fair amount, only a little, or not at all. First, how much do you personally worry about...” [maintenance of the nation’s supply of fresh water for household needs]. Response options include “not at all,” “only a little,” “a fair amount,” and “a great deal.” Standard errors are in parentheses.

**p* < 0:05, one-tailed test

Table 3 presents coefficient estimates for the model predicting support for regulations restricting water use. The coefficients for age are positive and statistically significant, which suggests that older respondents are more likely to support regulations on water use. In contrast to the model presented in table 2,

Table 3. Models Predicting Support for Regulating Water Use

Variable	Both drought variables	Long-term	Immediate
Treatment 1	.007 (.158)	.029 (.158)	.003 (.158)
Treatment 2	.126 (.155)	.129 (.155)	.121 (.155)
Party ID (D = -1, I = 0, R = 1)	-.229* (.107)	-.226* (.107)	-.237* (.106)
Ideology (Lib = 1, Mod = 0, Cons = 1)	-.256* (.084)	-.248* (.084)	-.247* (.084)
Climate Change (Believer = -2; Skeptic = 2)	-.526* (.078)	-.525* (.078)	-.529* (.078)
Drought persistence	.015* (.006)	.014* (.006)	—
Current drought	.417* (.207)	—	.387* (.206)
Education	.185* (.05)	.193* (.05)	.185* (.05)
African American	-.027 (.243)	-.039 (.243)	-.021 (.242)
Female	-.06 (.134)	-.052 (.134)	-.07 (.134)
Age	.009* (.005)	.01* (.005)	.009 (.005)
Income	-.028 (.022)	-.032 (.022)	-.03 (.022)
Cut 1	-1.404* (.369)	-1.452* (.369)	-1.663* (.351)
Cut 2	.000 (.365)	-.056 (.365)	-.265 (.346)
Cut 3	2.444* (.375)	2.383* (.373)	2.175* (.354)
<i>N</i>	868	868	868
Pseudo <i>R</i> ²	.117	.114	.115

NOTE.—Cell entries represent coefficients for ordered logit models estimated by maximum likelihood. The dependent variable is a survey item administered as part of the 2010 CCES, worded as follows: “Do you favor or oppose government regulations that restrict water use in order to preserve the water supply?” There were two experimental treatments that preceded this question. The wording of the first treatment was “Thinking about the issue of water conservation, a recent study found that [Local] County may face water shortages in coming years. Do you favor or oppose government regulations that restrict water use in order to preserve the water supply?” The wording of the second treatment was “Thinking about the issue of water conservation, a recent survey found that many [Local] County residents support government regulation to maintain the size of the local water supply. Do you favor or oppose government regulations that restrict water use in order to preserve the water supply?” For all conditions, response options included “strongly oppose,” “somewhat oppose,” “somewhat favor,” and “strongly favor.” Standard errors are in parentheses.

**p* < 0.05, one-tailed test

the coefficients for education in [table 3](#) are positive and statistically different from zero. Although more educated respondents are less likely to express concern about water availability, they appear to be more likely to support regulation of water use. Female gender and income were not statistically significant predictors of regulatory support.

The strongest predictors of support for government imposition of water regulation are predominantly ideological. Attitudes toward climate change were statistically significant predictors of regulatory attitudes. A person who is certain about the evidence in favor of climate change has a 69-percent chance of favoring regulation of water use, while an extreme climate skeptic has only a 32-percent chance of supporting regulation of water use.⁸ Self-reported ideology and partisan identification were also significant predictors of water regulation attitudes. Republicans and conservatives are less likely to support government regulations restricting water use, according to estimates reported in [table 3](#).

As above, the positive and statistically significant coefficients demonstrate that the contextual effect of drought is a statistically and substantively significant predictor of a pro-regulatory response. Based on a simulation using the model estimated in column 1 of [table 3](#), residential setting in a region stricken by drought throughout the entire period is estimated to increase the probability of a pro-regulatory attitude by about 12 percent, relative to residence in a county entirely free of drought.⁹ Meanwhile, the immediate effect of “severe” drought (or worse) increases the probability of regulatory support by nearly 11 percent.¹⁰ Thus, the experience of local drought is consistently predictive of attitudes toward both concern about water availability and water policy.

It is reasonable to suppose that, despite the consistent relationship between drought-afflicted counties and public opinion about water policy, the models presented in [tables 2](#) and [3](#) are simply capturing the relationship between drought and generic environmentalism. To demonstrate that drought is associated with concern about water availability in particular, I estimated equations predicting concern about alternate forms of environmental malaise. For nearly all of these items, the coefficients for residence in drought-afflicted counties

8. This simulation is based on a hypothetical white male with demographic characteristics held at the population medians, and political variables held at centrist positions. All simulations in the study were performed using Zelig (Imai, King, and Lau 2008).

9. This simulation is based on a hypothetical white male with demographic characteristics held at the population medians, and political variables held at centrist positions. For this simulated individual, the probability of supporting regulation of water use from a non-drought county is about 56.6 percent, while residence in a drought-stricken county leads to a probability of supporting regulation at 69.0 percent.

10. This simulation makes the same assumptions as those indicated above. The probability of a pro-regulatory attitude in a non-drought county was simulated to be about 57.1 percent, while residence in a drought-afflicted county was simulated at 66.7 percent.

were not positively related to environmental concern.¹¹ Thus, the relationships analyzed here are not a spurious consequence of an unmeasured characteristic that predicts support for generic environmentalism and residence in a county affected by drought.

Conclusion

Research into contextual influences on public opinion frequently confronts inferential threats from endogeneity and spuriousness. Scholars have long argued that the laboratory setting offers a greater degree of internal validity in social science research (McDermott 2002). The present study leveraged the assignment of a weather-related “treatment” to study the influence of local context on environmental opinion. Relative to most observational research, drought as a naturally assigned treatment is more plausibly analogized to the laboratory setting, and as such, offers the opportunity for stronger causal inferences (Dunning 2008).

The majority of research into the sources of environmental policy attitudes concludes that little variation can be explained by contextual variables. This study has found consistent evidence that both the *presence* and *persistence* of drought predict concern about the water supply and regulatory solutions aimed at protecting it. While the NIMBY syndrome remains largely absent from the public opinion literature, this study provides evidence that in the area of environmental public policy, where one lives may influence how one thinks.

Appendix: Sampling Information

Gallup Polls: All three Gallup surveys analyzed in this paper were probability-based samples of U.S. adults living in households, using random-digit dialing. Both landline and cell-phone users were sampled. All interviews were conducted in English. The 2008 Gallup survey was in the field March 6–9, 2008. The 2009 Gallup survey was in the field March 5–8, 2009. The 2010 Gallup survey was in the field March 4–7, 2010. Using the AAPOR-III calculation, the response rate for 2008 was 11 percent; for 2009, it was 12 percent; and for 2010, it was 10 percent. Random respondent selection is achieved by using the latest-birthday method. At least three attempts are made to reach a person in each household, spread over different days and times of day. Appointments for callbacks that fall within the survey data-collection period are made.

2010 Cooperative Congressional Election Study: The CCES was a collaborative survey project conducted by Polimetrix. Polimetrix samples from

11. I report coefficient estimates for models predicting each environmental concern item included in a Gallup survey between 2008 and 2010 in the online appendix.

a volunteer panel of respondents, and then uses statistical matching to create a sample that looks similar to a random sample of adult consumers in the United States across a set of specified characteristics. It is not possible to assess whether the resulting sample is representative across other (unmatched) characteristics. Using the AAPOR-III calculation, the response rate was 41.8 percent, the cooperation rate was 70.3 percent, and the refusal rate was 4.3 percent. For additional details about the CCES sampling methodology, visit <http://projects.iq.harvard.edu/cces/book/study-design>.

Supplementary Data

Supplementary data are freely available online at <http://poq.oxfordjournals.org/>.

References

- Adeola, Francis O. 2000. "Endangered Community, Enduring People." *Environment and Behavior* 32:209.
- Bishop, Bill, and Robert G. Cushing. 2009. *The Big Sort: Why the Clustering of Likeminded America Is Tearing Us Apart*. Boston, MA: Mariner Books.
- Bord, Richard J., and Robert E. O'Connor. 1997. "The Gender Gap in Environmental Attitudes: The Case of Perceived Vulnerability to Risk: Research on the Environment." *Social Science Quarterly* 78:830–40.
- Cho, Wendy K. Tam, and James G. Gimpel. 2009. "Presidential Voting and the Local Variability of Economic Hardship." *Forum* 7:1–21.
- Davidson, Debra J., and William R. Freudenburg. 1996. "Gender and Environmental Risk Concerns." *Environment and Behavior* 28:302–39.
- Dunlap, Riley E., Chenyang Xiao, and Aaron M. McCright. 2001. "Politics and Environment in America: Partisan and Ideological Cleavages in Public Support for Environmentalism." *Environmental Politics* 10:23–48.
- Dunning, Thad. 2008. "Improving Causal Inference." *Political Research Quarterly* 61:282–93.
- Egan, Patrick J., and Megan Mullin. 2012. "Turning Personal Experience into Political Attitudes: The Effect of Local Weather on Americans' Perceptions about Global Warming." *Journal of Politics* 74:796–809.
- Gill, D. A., J. S. Picou, and L. A. Ritchie. 2012. "The Exxon Valdez and BP Oil Spills: A Comparison of Initial Social and Psychological Impacts." *American Behavioral Scientist* 56:3–23.
- Hamilton, Lawrence C., Chris R. Colocousis, and Cynthia M. Duncan. 2010. "Place Effects on Environmental Views." *Rural Sociology* 75:326–47.
- Hill, Seth J., Michael C. Herron, and Jeffrey B. Lewis. 2010. "Economic Crisis, Iraq, and Race: A Study of the 2008 Presidential Election." *Election Law Journal* 9:41–62.
- Hopkins, Daniel J. 2010. "Politicized Places: Explaining Where and When Immigrants Provoke Local Opposition." *American Political Science Review* 104:1–21.
- Imai, Kosuke, Gary King, and Olivia Lau. 2008. "Toward a Common Framework for Statistical Analysis and Development." *Journal of Computational and Graphical Statistics* 17:892–913.
- Klineberg, Stephen L., Matthew McKeever, and Bert Rothenbach. 1998. "Demographic Predictors of Environmental Concern: It Does Make a Difference How It's Measured." *Social Science Quarterly* 79:734–53.
- Konisky, David M., Jeffrey Milyo, and Lilliard E. Richardson. 2008. "Environmental Policy Attitudes: Issues, Geographical Scale, and Political Trust." *Social Science Quarterly* 89:1066–85.

- Lane, Robert E. 1962. *Political Ideology: Why the American Common Man Believes What He Does*. New York: Free Press of Glencoe.
- McDermott, Rose. 2002. "Experimental Methods in Political Science." *Annual Review of Political Science* 5:31–61.
- Michaud, Kristy, Juliet E. Carlisle, and Eric R. A. N. Smith. 2008. "Nimbyism vs. Environmentalism in Attitudes toward Energy Development." *Environmental Politics* 17:20–39.
- Mullin, Megan. 2009. *Governing the Tap: Special District Governance and the New Local Politics of Water*. Cambridge, MA: MIT Press.
- Mutz, Diana C. 1993. "Direct and Indirect Routes to Politicizing Personal Experience: Does Knowledge Make a Difference?" *Public Opinion Quarterly* 57:483–502.
- . 1994. "Contextualizing Personal Experience: The Role of Mass Media." *Journal of Politics* 56:689–714.
- Risen, Jane L., and Clayton R. Critcher. 2011. "Visceral Fit: While in a Visceral State, Associated States of the World Seem More Likely." *Journal of Personality and Social Psychology* 100:777–93.
- Saad, Lydia. 2011. "Water Issues Worry Americans Most, Global Warming Least: Environmental Concerns Are Flat since 2010, but Down over Past Decade." <http://www.gallup.com/poll/146810/Water-Issues-Worry-Americans-Global-Warming-Least.aspx>.
- Sears, David O., and Carolyn L. Funk. 1991. "The Role of Self-Interest in Social and Political Attitudes." *Advances in Experimental Social Psychology* 24:1–91.
- Smith, Eric R. A. N. 2002. *Energy, the Environment, and Public Opinion*. Lanham, MD: Rowman & Littlefield.
- United States Drought Monitor. 2012. <http://droughtmonitor.unl.edu/monitor.html>.
- Whitmarsh, Lorraine. 2008. "Are Flood Victims More Concerned about Climate Change Than Other People? The Role of Direct Experience in Risk Perception and Behavioral Response." *Journal of Risk Research* 11:351–74.