Moral Outpouring: Shock and Generosity in the Aftermath of the BP Oil Spill

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The 2010 BP oil spill is the largest human-caused disaster in U.S. history. Using nationally representative panel data measured before, during, and after the spill I find that rather than giving time and money to actual relief efforts, Americans responded primarily through dramatic increases in time and money given for environmental causes. This expands current understandings about how and why Americans respond to large-scale catastrophe. I argue that this phenomenon can be made sense of theoretically by focusing on the cultural context of "moral shock" precipitated by historic environmental harm and corporate negligence, both of which were amplified in the wake of the spill by national media. This heightened emotional climate interacted with Americans' empathetic identities, practices and habits, politics, *and* culture *to produce different pathways to philanthropic engagement. Consistent with this argument, the results show that all four of these factors mattered for predicting generous behavior in this case, but did so at different points in time. I close by outlining the substantive and theoretical implications of my argument.*
Keywords: environment; disasters; philanthropy; civic engagement; morality; BP oil spill.

In the months following the April 2010 *Deepwater Horizon* explosion, Americans watched 2.52 million gallons of crude oil per day gush into the Gulf of Mexico (Crone and Tolstoy 2010). For three months there was deep uncertainty and profound feelings of helplessness about if, or when, the gushing well one mile below sea would be capped. There was anxiety about just how much damage would ultimately be done, and widespread anger about holding responsible the corporate entities accountable for the oversights that led to the spill. Indeed, any support for the popular "Drill, Baby, Drill" call-to-action from Republican leaders at the 2008 Republican National Convention was, for at least a short while, swiftly replaced by sobering awareness about the risks and consequences associated with offshore drilling. On July 15, 2010, the gushing wellhead was eventually capped, marking the end of 86 days of outrage and uncertainty, leaving behind 210 million gallons of crude oil. The result was the largest human-made catastrophe in U.S. history; ten times the magnitude of the Exxon Valdez spill (Crone and Tolstoy 2010; Robertson and Krauss 2010). *How* did Americans respond? *Why* did they respond in the ways that they did?

Situating the BP spill within the context of prior work on public responses to disasters suggests that the BP disaster may have been different from past disasters in response to which Americans gave generously of their time and money. Three characteristics of the BP event are especially salient for expecting that Americans should *not* have donated time and money to relief efforts. First, BP took full responsibility for the spill, and was later held legally responsible by President Obama and the U.S. federal government for environmental cleanup and financial compensation. BP established a well-publicized $20 billion response fund, making the source of blame very clear and taking pressure off of the public to help with financial relief efforts.

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Second, the BP spill occurred 41 miles offshore, one mile below sea, and contaminated 68,000 square miles of ocean water as well as several hundred miles of U.S. coastline. Thus the spill was not concentrated within one particular community, suggesting that the national response would be less focused than other, more localized disasters that most scholars have studied (e.g., Beamish 2000; Erikson 1976; Norris et al. 2005; Patterson, Weil, and Patel 2010; St. John and Fuchs 2002). Third, the BP spill had a relatively low human death toll compared to other large-scale events. In contrast to Hurricane Katrina, 9/11, the Oklahoma City bombing, the Haiti earthquake, and similar catastrophes, direct relief to immediately save large numbers of human lives was unnecessary. Research has shown that being victimized or knowing victims of disasters increases the likelihood of relief response (Beyerlein and Sikkink 2008; Rossi, Wright, and Weber-Burdin 1982). Yet, in the case of the BP spill the natural environment was the principal immediate victim. For these reasons, Americans should have been *less likely* to give time or money to the BP relief effort.

Data on U.S. voluntary financial giving after the spill verify this expectation. Recently collected data from the *Chronicle of Philanthropy*, the foremost authority in nonprofit giving, demonstrate that Americans contributed very little money to specific BP relief efforts (see Figure 1). In the 42 days following the BP spill, only $4 million were donated to the relief efforts, paling in comparison to donations gathered 8 days after Hurricane Katrina ($580 million), 14 days after September 11th ($500 million), and 17 days after the Haiti earthquake ($560 million) (Wallace 2010).

While few gave money to the BP relief fund, there was however an outpouring of Americans from outside of the Gulf region inquiring to *volunteer* in the relief efforts. The Audubon Society alone had over 12,000 volunteers in only one week's time ready to mobilize (National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling 2011). But like the monetary relief effort, there were characteristics unique to this BP event that minimized the need for volunteers. The tens-of-thousands of Americans from across the country inquiring to volunteer in the

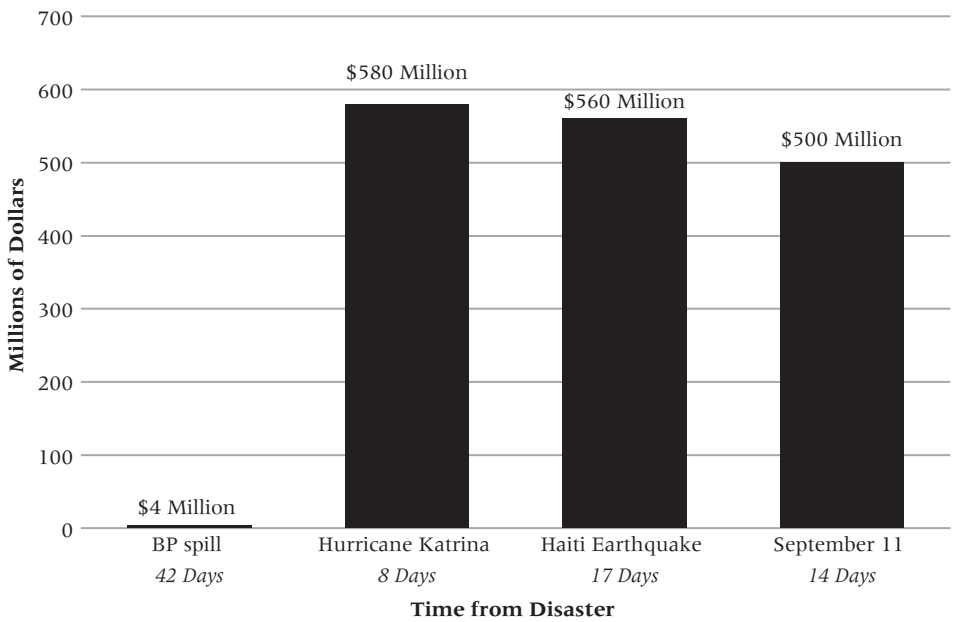

Figure 1 • ***Money Given by Americans Specifically for Disaster Relief Efforts, by Time Passed***

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BP cleanup were quickly urged by environmental NGOs, BP, and government agencies to "stay home" (Berr 2010). Most volunteers were turned away because the immediate cleanup area was too far offshore, and because citizen volunteers lacked the ecological "skills and training" to effectively spot the oil, place containment booms, or clean oiled wildlife (National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling 2011).

This raises an important question: *If BP fully funded the cleanup efforts, and most public volunteers were turned away, how did Americans channel (if at all) the surge of emotional shock, anger, and moral energy generated by the spill?* Did they help the environment in other ways?

This case presents a unique opportunity to improve our understanding of generosity in the aftermath of large-scale catastrophe. Can a traumatic event cause surges in philanthropic engagement, even if that engagement is not directly targeted toward the specific event itself? In turning away potential volunteers, environmental organizations and government agencies encouraged Americans to instead "channel your energy in other environmental projects in your state or around the country" (Auvil 2010). Even though Americans gave very little money, and thousands of relief volunteers were turned away, the disaster may have compelled them to get involved in environmental issues in other ways, such as through their local environmental, civic, political, or religious organizations. In this sense, measuring the effect of the BP spill, and Americans' responses to it, may require us not to look at relief figures (i.e., money donated or number of volunteers), but rather to more general environmental generosity. Was there a post-BP increase in giving money or volunteering for the environment after the spill, or did the moral energy generated by the spill go untapped? Assessing this possibility is the first aim of this study.

The second aim of this study is to examine why some Americans, but not others, did in fact channel the moral and emotional energy generated from the BP spill into giving money or volunteering for the environment. We know that not all Americans experienced the BP event in the same way, and thus we should find variation in the effect of that crude oil spill on their subsequent response. The present study is especially interested in Americans who did *not* give money or volunteer *before* the spill, but then were *activated* by the spill to give money or volunteer for the environment. This article builds a theoretical model to understand this activation process by synthesizing relevant research across several sociological subfields. This model includes four distinct, yet interrelated, parts: (1) *empathetic identities*, (2) *practices and habits,* (3) *politics*, and (4) *culture*. My analysis will explain how these four areas of social influence interacted with the sudden moral and emotional shock of the spill in different ways, and how this process shaped the pathways leading to post-BP engagement.

Lastly, this study examines whether or not these effects are enduring or fleeting over the long term. Is the moral and emotional imprint of such a catastrophic event so indelible that it sustains higher levels of giving and involvement by some people, even as the catastrophe fades into a distant memory for most Americans? These questions address larger theoretical puzzles about the circumstances under which catastrophes do and do not have long-lasting social effects.

To answer these questions, this study capitalizes on innovative new data. The data are particularly suitable for such analyses because they come from a unique, longitudinal, natural-experimental design, and are nationally representative and include three repeated measures from the same people across time (1 to 2 months *before* the spill, 1 to 2 months later *in the midst* of the spill, and 1 year *after* the spill).[1] These data make it possible to track the rising and declining importance of different social influences on giving and volunteering from before the spill to immediately after the spill, and one year later as the disaster faded into memory. Furthermore, the data include two different measures of philanthropic behavior—giving money and

1. The fact that this is a natural experiment design was of course an accident, given that we were not expecting the BP spill to take place immediately after our first wave of data collection. But I capitalize on this occurrence, especially given the fact that the three waves of data were gathered so close together and focus on environmental issues. This allows me to make causal inferences about the immediate effect of the spill on Americans' behavior (more on this below in the data and methods section).

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volunteering—which is important given that past research has shown qualitative differences among people who give their money versus people who give time (Jones 2006; Lee, Piliarin, and Call 1999). In sum, these panel data are ideal for examining *how* and *why*—over the course of time—certain people, but not others, can be "activated" by a traumatic event to engage in philanthropic behavior.

Case Context: Media and Moral Shock

A remarkable body of research has identified important negative emotional consequences of human-caused disasters, finding associations with chronic feelings of distrust, depression, fear, brooding, paranoia, anger, and frustration (Arata et al. 2000; Baum and Fleming 1993; Edelstein 2004; Erikson 1976, 1994; Gill and Picou 1991; Kroll-Smith 1995; Picou, Marshall, and Gill 2004; Ritchie and Gill 2007).[2] This body of work powerfully demonstrates that these types of emotional consequences are a primary mechanism through which to understand post-disaster responses. For example, in their work on mobilization after the nuclear disaster at Three Mile Island, Edward Walsh and Rex Warland (1983) argue that an unexpected disaster creates "suddenly imposed grievances" that shake people from their daily cognitive routines. It is technological, or "human-caused," disasters in particular are especially effective "catalysts for collective action" (i.e., volunteering) because they have "far more severe and long lasting . . . cultural and psychological impacts than do natural [disasters]" (quoted in Picou et al. 2004:1495; see also Dynes 1974; Erikson 1976, 1994; Kreps 1985,1998; Ritchie and Gill 2007). Indeed, more and more scholars are paying due attention to the human causes and consequences of large-scale disasters, focusing on preventable institutional failures, the U.S. "growth machine," and the social organization of risk. (e.g., Dowty and Allen 2011; Freudenburg et al. 2009; Klinenberg 2002; Perrow 2011).

An emerging body of social scientific work about the BP disaster is beginning to take shape. Those taking a more critical sociological approach draw on media accounts and insights from disaster studies to document the causes of the spill, and have critically assessed the causal role of corporate power, risk, deregulation, and fossil fuel dependence (Freudenburg and Gramling 2010; Ladd 2012). Scholarship on the consequences of the BP spill have primarily been concerned with documenting the negative mental health effects of the disaster on local Gulf communities (Cope et al. 2013; Lee and Blanchard 2012; Osofsky, Osofsky, and Hansel 2011). Duane Gill, Steven Picou, and Liesel Ritchie (2012) use local survey data to compare the BP disaster with the 1989 *Exxon Valdez* spill, highlighting the continued "importance of vulnerability, resource loss, recreancy, and risk perceptions for understanding the social and psychological consequences of the BP oil spill" (Gill et al. 2012:12). Others have surveyed local Gulf communities to understand the influence of the spill on local environmental attitudes (Hamilton, Safford, and Ulrich 2012) and local perceptions of governmental and BP response efforts (Safford et al. 2012).

As with the research on the effects of the BP oil spill on Gulf communities, the rich tradition of scholarship on technological disasters has also tended to focus on *local* effects in particular communities. This is indeed necessary, interesting, and important, and we need more of it. But there is also reason to suspect that Americans *outside* of the Gulf felt the emotional impacts of the BP disaster. Prior research on oil spills suggests that we should pay particular attention to the role of the media in shaping emotional reactions of the national public. Thomas Birkland (1997) notes how oil spills in particular are powerful media events, framing public reactions and amplifying grievances by morally shocking and angering the public using pictures of oiled birds

2. Work within the sociology of disaster has long debated the usefulness of distinguishing between "natural" and "technological" (human-made) disasters. A *technological disaster* emphasizes human error as its root cause, and the long-term social and psychological stress that these types of disasters have on local populations. For insightful research on these issues, see Arata and colleagues 2000; Baum and Fleming 1993; Norris 2006; Picou and colleagues 2004; Tierney 2007.

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and shorelines (see also Gamson and Modigliani 1989; Tierney, Bevc, and Kuligowski 2006; Widener and Gunter 2007). In work on responses to the *Exxon Valdez* oil spill, Birkland (1998) links mobilization to the ways "news media transmitted easily understood and vivid images of oiled shorelines and oiled wildlife" (pp. 68-89). Thus, many Americans felt the emotional impact of the BP disaster through websites, front pages of newspapers, and cable news programs that broadcast shocking images from the disaster and stories about gushing oil and the nearly 7,000 suffocated dead animals washing ashore. This was deeply problematic for most Americans (see Figure 2a). Environmental philosopher Holmes Rolston remarked that the spill intensely affected many Americans by "forcing a summer-long soul searching, with the disaster daily in the public face of the media" (Rolston 2012:4). We also know that "social and psychological stresses are heightened by the *uncertainty* that comes from toxic contamination" (Ritchie, Gill, and Picou 2011:31; emphasis added). Given the national coverage of the many failed attempts to cap the gushing BP wellhead, there was indeed great uncertainty throughout the entire summer of 2010, only heightening levels of stress and outrage for many Americans.

The role of media in producing these emotional reactions was arguably stronger in the BP disaster than in others, because of newly available media technologies, and because public access to mass media has increased dramatically in recent years (Nielsen 2011). Immediately following the explosion, media sources broadcast photos, videos, description, and commentary. In addition to these traditional forms of media, the public was provided with a 24-hour access feed to a live web camera of the gushing oil 5,000 feet below the ocean surface (see Figure 2b). For the first time in history, anyone with Internet access was able to witness a large-scale disaster occur in real time. The spill quickly became one of the most important news events of 2010, and "BP oil spill" was the most searched for word or phrase on the Internet in 2010.[3] This was the first time in history that a news story was the most searched for word or phrase, as opposed to a celebrity or sports figure. Figure 3 displays the national search trends from before to after the spill.

The BP spill and the effects of the media response are an example of what Jasper and Poulsen (1995) describe as a "moral shock"—defined as "an event or situation [that] raises such a sense of

Figure 2a • ***Photo of Post-B.P. Bird***

Source: *AP Photo/Charlie Riedel*

3. Both Yahoo! (Yahoo.com 2010) and Google (Google.com 2010b) reported "BP Oil Spill" as the most searched for phrase in 2010. The graph in Figure 3 traces the popularity of the term as it waxed and waned over the summer months. While it was the most searched for term in all of 2010, it is clear that it was most popular just after the spill, until the well was capped. The graph also includes the term "help the environment" because it also became a very popular search phrase in the months following the spill, describing the reaction by Americans to search out ways to give money or volunteer. This search phrase also quickly faded later in the summer after the well had been capped (data available upon request).

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Figure 2b • ***Live Web Feed of the Oil Spill***

Source: *Screenshot from public feed, June 2010*

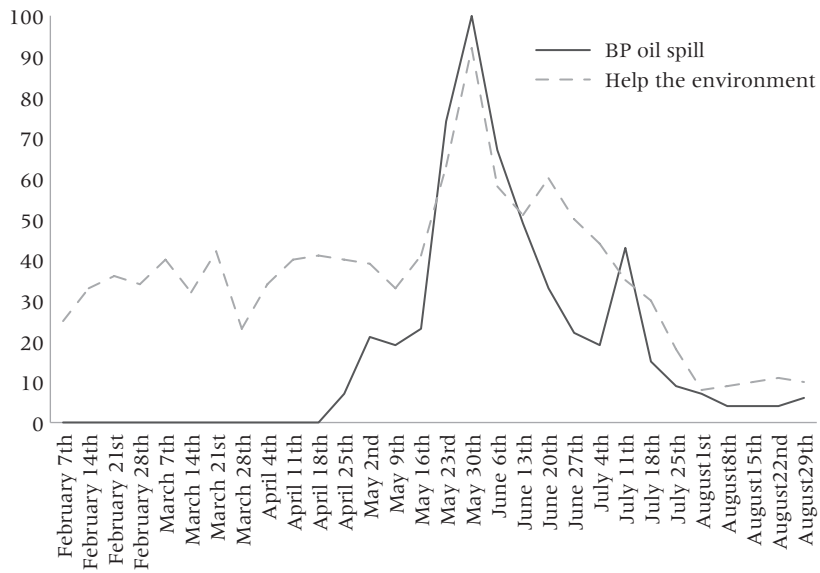

Figure 3 • ***Google Search Popularity, February–August 2010***

Notes: Data collected from Google Trends (Google.com 2010a). While "BP Oil Spill" was the most searched for word or phrase in the United States in 2010, this graph displays its *popularity over time rather the raw number of searches that were conducted*. Thus, the Y-axis represents its relative popularity over time, with 100 being its peak. This was the first time in history that a news story was the most searched for word or phrase, as opposed to a celebrity or sports figure. More information about these data are available upon request.

outrage in people that they become inclined toward political action" (p. 498). They argue that public events that are "unexpected and highly publicized" are especially likely to morally "shock" individuals to get involved. Moreover, the suddenness of the disaster amplified the moral and emotional shock experienced by Americans. David Snow and colleagues (1998) argue that the "suddenness" of the Three Mile Island nuclear accident disrupted the "quotidian"—that is,

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it shook people from their daily cognitive routines, their "habituated unthinking fashion" (Bourdieu 1977).

In this sense, the *suddenness* of a disaster is important only because it has a particular ability to disrupt the routine cognitive and daily order of things—to "unsettle" the routines of normally settled times (Swidler 1986, 2001). Environmental organizations recognized this fact and used morally shocking images as recruitment tools in ads, direct mailers, and on the front of their websites. This emotional appeal to the moral shock of the spill appeared to be working for raising environmental awareness. In a recent book, Holmes Rolston (2012) summarizes the post-BP American context as one that was full of "outrage at the damaged caused . . . [and yet] amidst all this wake-up, confusion, and disaster, Americans seemed to be gaining consensus that environmental conservation must be high on the national agenda. The big spill left no doubt about that" (p. 4).

Explaining Variation in Post-Disaster Engagement

However, not all Americans experienced the moral shock of the spill in the same way. Thus this study considers different aspects of social life through which these psychological effects were felt. A moral shock does not occur in a vacuum, and it is doubtful whether the moral shock on its own was enough to push people to give money or volunteer (but see Jasper and Poulsen 1995). Therefore the present study uses prior research to build a model whereby we might understand how the moral and emotional effects of the disaster *interact* with different individual and group influences to produce different pathways to post-spill engagement. This process focuses particular attention on the factors related to *empathetic identities, practices and habits, politics, and culture*.

Empathetic Identities

We know from work in the cognitive sciences and social psychology that an individual's conception and expression of identity with different social groups or causes shapes how they respond in different social situations (for a helpful review see Stryker and Burke 2000). In this line of work, actors are self-regulating persons whose goal is to avoid negative emotions by verifying their identities. Jan Stets and Michael Carter (2012, 2011) recently applied this thinking to moral identities, and demonstrate its importance for motivating behavior that will match identity expectations. Their work shows that the more a person identifies a situation as containing moral meanings and obligations, the more likely that the person will avoid negative emotions and behave in ways that are consonant with their perceived moral identity.

With regard to how identities influence how people respond to large-scale disasters or other traumatic events, prior research has shown that to explain "who cares?" (Wilson and Musick 1997) largely depends on whether or not a person identifies and empathizes with the victims of a tragedy. If part of a person's identity is consonant with the victim it is more likely that the emotional effects of the disaster will increase solidarity and empathy and thus motivate behavior on the victim's behalf. In their work on who volunteered after the 9/11, Kraig Beyerlein and David Sikkink (2008) demonstrate this point, finding that people holding a regional identity as "New Yorkers" or "New Jerseyans" increased their likelihood of volunteering because they identified more closely with those who were most affected by the tragedy.

In the case of the BP oil spill, the natural environment was framed as the primary victim of the disaster, and therefore this logic might lead us to expect that those Americans who self-identify as an "environmentalist" would be more likely to respond because they sympathize more with the victim.[4] Additionally, following Beyerlein and Sikkink (2008), there is good reason to

4. That is not to say that humans were not victims. The explosion killed 11 people, and many local Gulf residents were impacted in other ways (e.g., tourism, fishing, private property destruction, etc.). Yet in the national framing of the issue, the environment, or the defilement of "nature," took center stage.

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believe that a regional identity might matter as well, given that Gulf residents would be more likely to know persons victimized by the spill or feel that they (i.e., their natural habitat or economic well-being) were victimized. Thus, even though the politicized media attention surrounding the disaster made it a "national" disaster in scope, there is good reason to believe that Gulf residents experienced especially high levels of moral shock and were potentially more likely to turn this shock into donations and volunteering. These hypotheses are examined in an empirical context below.

Practices and Habits

Research in cultural sociology and social psychology has recently stressed the importance of explaining action by recourse to the ways people rely on practices and habits that are acquired over time through behavioral socialization, and that are "activated" by different contextual cues (DiMaggio 1997; Lizardo and Strand 2010; Swidler 2001). Drawing on this tradition of thought guides us toward investigating Americans' responses to disasters by examining what people know how to do in a practical sense.

While not using the same theoretical language as practice, skills, or habits, research on responses to disasters has indeed shown that practices and habits matter for predicting who responds to disasters. Work on oil spills in particular suggests that we should pay attention to the ways in which practical competencies are activated in heightened emotional contexts because "group mobilization after oil spills is aided by the symbolic richness of these events" (Birkland 1998:68). Prior involvement cultivates habits and "know-how" about how to get involved, but perhaps more importantly it provides networks with which to make it happen. For example, Edward Walsh and Rex Warland (1983) point out that prior membership in clubs and organizations predicted mobilization in the wake of nuclear disaster. With this in mind, we should expect that those Americans who were civically engaged prior to the spill would be more likely than other Americans to successfully transform the moral and emotional shock into actual behavior. This hypothesis is examined in the data below.

Politics

The influence of political affiliation may also be a factor explaining how the moral shock of the spill was important for post-spill engagement. First, a wide body of work in environmental sociology has shown that Democrats have traditionally scored higher on scales of "environmental concern," and are more likely to get involved in such efforts (e.g., Jones and Dunlap 1992). More recent research suggests that cleavages between Republicans and Democrats may be growing (Dunlap and McCright 2008b; Dunlap, Xiao, and McCright 2001). The present case provides a useful opportunity to examine how political affiliations interact with large-scale environmental harm, net of other factors such as education, income, environmentalist identity, religion, and demographic influences. Following moral identity theory above (Stets and Carter 2011, 2012), I argue that *not* acting in the wake of the spill would elicit negative emotions among Democrats because of the moral meanings this political identity has traditionally attached to the environment and corporate regulation. The internal logic of the Democratic identity, then, might lead us to expect that Democrats would be more likely than members of other political affiliations to give and volunteer in the wake of the disaster because the spill, and the media attention in the aftermath, centered on the moral failures of the government to adequately regulate a large corporation that was engaging in an environmentally sensitive and high-risk practice (offshore drilling).

Within this post-BP political atmosphere, volunteering for the environment was also a show of support for Democratic ideals and for President Obama. We know that this was true for Republicans after 9/11, whereby Republicans were more likely than Democrats to volunteer because they were motivated by a strengthened collective identity with "America" and a sitting Republican president (Beyerlein and Sikkink 2008). Likewise, in the case of BP, the moral shock

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of the spill served to rally the collective identity of Democrats around their ideals of corporate regulation, whereby they blamed the moral collapse, and subsequent environmental degradation, on loose restrictions inherited from the past administration. Thus, to give money or donate time was not only a generous act benefiting the environment, but was also a political act affirming solidarity with President Obama, and reinforcing their own civic identity and ideals. These hypotheses are examined in an empirical context below.

Culture

The influence of American individualism has taken center stage in discussions about civic engagement by focusing on the interaction between moral obligation and the culture of American individualism. In *Habits of the Heart* (1985), Robert Bellah and colleagues build on Alexis de Tocqueville ([1835] 1969) to empirically assess American individualism by examining how different *cultural worldviews*—defined as broad orientations toward moral evaluation that flow from different views of the self—might be related to civic participation in the United States. Bellah and colleagues seek to understand the cultural resources upon which Americans draw to think about and respond to moral problems. They identify three broad cultural worldviews: (1) the ethic of *individualism*, concerned with personal preferences, innate rights, and self-benefit; (2) the ethic of *community*, concerned with obligation to a community (e.g., family or nation-state) and one's role within it; and (3) the *theistic* ethic, concerned with obligation to religious purity and upholding the "natural" or divine order. In their interviews, Bellah and colleagues find that the language of individualism ("utilitarian" and "expressive") posed a serious threat to American civic vitality, and argue that the language of theistic *(i.e., "biblical tradition")* and community (i.e., "*republican tradition*") responsibility were alternative cultural worldviews that were better able than individualism to foster civic engagement.

Other scholars working in culture and cognition (and psychology) have demonstrated the powerful influence these worldviews have on various behaviors, ranging from youth deviance, to one's social network composition, to the divide between liberals and conservatives in the United States (Jensen 1995; Rozin et al. 1999; Shweder et al. 1997; Shweder 2003; Vaisey 2009; Vaisey and Lizardo 2010). This impressive body of research suggests that these broad cultural and moral orientations might be an important factor predicting how different Americans interpreted the moral shock of the spill. Drawing on this research, it is possible that these cultural worldviews will matter most for activating (or dampening) post-disaster engagement for certain Americans, especially *in the period just after the spill*, when the intensity of the moral shock was at its peak. Furthermore, given Bellah and colleagues' findings, as well as the host of subsequent work, Americans holding a community or theistic worldview should be more likely than persons with an individualist worldview to respond to the spill by becoming civically engaged, net of other factors.

In addition to these broad cultural worldviews, religious service attendance is another aspect of culture that scholars have shown to be an important factor influencing different types of engagement. It is important to note that attending religious services is distinct from these broad cultural worldviews (people attend religious services for a variety of reasons), and may uniquely influence volunteerism and philanthropic giving in the wake of an environmental catastrophe. For example, prior research has stressed the importance of participation in a local congregation for predicting altruistic responses to disasters (Nelson and Dynes 1976; St. John and Fuchs 2002). Participating in a religious congregation increases opportunities to get involved and develop networks and civic skills (Verba, Schlozman, and Brady 1995). In addition, many congregations socialize members into seeing assistance as a theological obligation (Chaves 2004; Smith 1996; Wuthnow 1999, 2004; Wuthnow and Evans 2002).[5] Thus, the effect of

5. In the last 20 years, research in environmental sociology and the sociology of religion has shown that congregations are prioritizing environmental justice issues as theological issues (e.g., "Creation Care"). This appears to be happening in both

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religion seems to be both about the skills one picks up as a participant in a congregation, as well as internalized theological ideals that can motivate individuals to take action for victims of a disaster. Thus, we might expect that those who attend religious services more often might be more easily "activated" in the wake of the spill because they are already part of an organization that will provide them the skills, networks, opportunities, and theological conviction with which to channel the moral and emotional shock of the spill into action. These hypotheses are examined in an empirical context below.

Data

Panel Survey

The 2010 Science of Generosity Survey is a survey of a representative sample of adult Americans ages 23 and older who live in U.S. households. The survey is one facet of a larger data-collection project conducted by researchers at the University of Notre Dame as part of the Science of Generosity Initiative. That Initiative is a broad, multidimensional project seeking to employ social-science and human-science methods to better understand and explain the sources or origins, manifestations, and consequences of human generosity. Knowledge Networks, Inc. of Menlo Park, California, conducted the panel survey.[6] The 2010 Science of Generosity Survey sample was random, using an implicitly stratified systematic sample design selected from Knowledge Networks' larger, national, "KnowledgePanel" sample of respondents to be a nationally representative sample of 1,997 respondents. It is a probability-based, online, nonvolunteer access-panel sample.[7] Panel sample members are recruited using a statistically valid sampling method with a published sample frame of residential addresses that covers approximately 99 percent of U.S. households. The overall sample includes persons living in cellular-telephone phone only households. Hispanic panel members represent the full spectrum of language proficiency, from exclusively Spanish speakers to those proficient in English only. Spanish-language households are also recruited by oversampling metro areas that are high-density Latino.

As a probability-based panel sample, by definition, all members of the panel sample (and so of the 2010 Science of Generosity Survey sample) have a known probability of selection. As a result, it is mathematically possible to calculate a proper response rate that takes into account all sources of nonresponse. By employing instead a probability-based, nonvolunteer-access panel sample, the 2010 Science of Generosity Survey, therefore, used the far superior method of conducting nationally representative surveys of populations using new Internet technologies. Weights are used to adjust for any disproportionate probability of selection and to adjust for known discrepancies between demographic characteristics of the sample and those in the population. The final completion rate for the 2010 Science of Generosity Survey is 65.2 percent. This relatively high completion rate supports the national representativeness of the 2010 Science of Generosity Survey sample.

conservative and progressive congregations alike (e.g., Kearns 1996, 1997; also see the Evangelical Environment Network website n.d.).

6. Knowledge Networks' samples and survey fielding methods have been employed by hundreds of studies and the results have been presented and published in hundreds of professional conferences, journal articles, and books. For example, the 2007–2008 American National Election Study, led by scholars at Stanford University. The sample was partly recruited by telephone using random-digit dialing (RDD) methods common to telephone surveys, and partly through an address-based sample method (ABS).

7. Households that did not have Internet access were provided a laptop computer and free Internet access. In addition, survey case managers provided telephone support for all technically challenged households that needed help connecting their computers to the Internet and accessing their e-mail and Internet surveys. For more see Knowledge Networks 2010.

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Waves 1 through 3

All three waves of data were collected at three separate points in time, with the same respondents across all three waves. The first wave of data was collected between February 12, 2010 and May 16, 2010. The *Deepwater Horizon* well exploded April 20, 2010, and thus a very small portion of Wave 1 data were collected after the oil began pouring into the Gulf. Fortunately, this portion only makes up 76 cases (3 percent) of the data, and these respondents have been omitted from the analysis. Wave 2 was collected between May 19 and June 3, 2010. This time frame is especially propitious given that it had been 1 to 2 months since the well exploded, and yet the spill was still ongoing. Wave 3 was collected between February 12 and March 29, 2011, a little less than a year after the spill began. As with any panel data, some respondents did not complete all waves of data. In these data, only 11 percent of respondents failed to participate in all three waves, and have been omitted from the analysis. A sensitivity analysis conducted on these omitted respondents demonstrates conclusively that they are randomly distributed across the variables used in the analysis, thus diminishing any concern about systematic bias in these missing data.[8]

Measures

Dependent Variables

As described in the introduction, data from the *Chronicle of Philanthropy* and volunteering reports showed that direct monetary or voluntary relief was not needed, and not received in the wake of the BP spill. Instead, this article considers the possibility that the BP oil spill may have caused a broader response, compelling Americans to get involved in giving and volunteering for the environment more generally. The 2010 Science of Generosity Survey asked respondents whether or not, in the last 12 months, they had "given money or possessions to an environmental group." It also asked respondents whether or not in the last 12 months they had "contributed time or volunteered for an environmental group." The same respondents were asked these same questions in *three separate occasions* at three separate time points. Three separate dichotomous variables were created for each variable using each of the three waves. In the first variable, those who had given money or possessions were coded 1, and those who had not were coded 0. Similarly, those who had volunteered were coded 1, and those who had not were coded 0.

Independent Variables

To operationalize empathetic identities, this study relies on two measures. The first measure draws on a rich body of work in environmental sociology (Dunlap and McCright 2008a; McCright and Dunlap 2008), psychology (Clayton and Opotow 2003), and anthropology (Kitchell et al. 2000; Tesch and Kempton 2004) about the meaning of "environmentalist" identity. With such polysemy about the term, I follow R.E. Dunlap and Aaron McCright's (2008b) recent methodological foray into the topic, where they use both empirical and theoretical evidence to suggest that researchers can achieve the most reliability and validity using a self-identification measure of environmentalism. Thus, the survey asks each respondent, "if they would describe themselves as an environmentalist: (yes, definitely = 1; yes, somewhat = 2; no = 3)." This variable was split into three separate dichotomous variables in order to compare these three identities. These responses, like the rest of the independent variables, are fixed at Wave 1 given that the spill

8. Sensitivity analyses are available from the author upon request.

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could have skewed responses in Wave 2 and Wave 3. In the models below they are labeled "strong environmentalist," "moderate environmentalist," and "nonenvironmentalist." The second way this study operationalizes empathetic identities is through physical proximity to the disaster ("Gulf identity"). This variable was coded 1 for respondents in states along the Gulf region whose beaches and waters were contaminated by the oil spill (Louisiana, Mississippi, Alabama, and Florida) and 0 for all other states.

Practices and habits are operationalized using four separate variables. The first is a measure of prior civic engagement. This variable is operationalized using a 12-item measure from Wave 1, asking respondents whether or not in the last 12 months they had participated in any of 11 different "civic and political activities," such as protesting, serving on a community board, holding public office, volunteering for campaigns, contacting government officials about issues or causes, or working with others in their community to solve a problem. The twelfth response category was "None of these." If respondents had participated in any of these 11 measures of civic engagement they were coded as 1, if they had not they were coded as 0.

This study also includes two practices and habits that are environmentally related. The first is a scale made up of four separate survey questions measuring recycling behavior. The Cronbach's Alpha score for this scale is $\alpha = .8928$. The second measure of environmental behavior is an item that asks if in the last 12 months the respondent has taken steps to reduce their use of energy: oil, gasoline, electricity, or heat. Those who had taken such steps were coded as 1, and those who had not were coded as 0.

To capture another dimension of practices and habits, the models include a measure of a respondent's giving efficacy. This measure captures how informed respondents are about *how* to give their time and money. Respondents may have experienced the moral shock of the spill to the same degree as the well-informed, yet they lacked the concrete knowledge and skills about where and how to channel their energies into volunteer efforts. This variable, referred to in the models below as "uninformed," is a seven-point ordinal variable measuring the extent to which respondents say they know "how to give" or "who to give to" regarding "charitable, religious, or other good causes."

To measure political identity, the models include four dichotomous measures of political party affiliation: Democrat, Republican, Independent, and other or no political affiliation. Republicans serve as the reference category in all models. To measure participation in a religious congregation, an ordinal variable for frequency of attendance at religious services is used (excluding weddings, baptisms, and funerals). This variable ranges from a low of one (never) to a high of eight (more than once a week).

To examine cultural worldviews, this study follows the typology made popular by Bellah and colleagues (1985), refined by Richard Shweder and colleagues (1997), and employed in quantitative analysis by a number of sociologists and psychologists (Beyerlein and Vaisey 2013; Haidt 2001; Vaisey 2009; Vaisey and Lizardo 2010). Respondents were asked how they would determine a course of action in a situation where they were unsure of what was right or wrong: (1) "Do what would make you feel happy;" (2) "Do what would improve your personal situation;" (3) "Go with what your friends think is best;" (4) "Follow the advice of a parent or someone else you respect;" or (5) "Do what you think God or scripture tells you is right?" Three dichotomous worldview variables were constructed based on these five responses. Responses one and two are combined to form the individualism worldview, responses three and four are combined to form the communitarian worldview, and response five describes the theistic worldview. The question also included an option for respondents to "refuse" to answer the question if they were unsure or did not understand what was being asked. Only 1.5 percent of respondents refused to answer.[9]

9. Unlike all of the other independent variables, this question was asked of respondents at Wave 2. This raises questions about causation, and the potential for the BP spill to change one's cultural worldview. A wide body of research (cited above;

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Measuring a concept as complex as a person's unconscious moral worldview can be difficult, and using a one-item indicator raises important questions. Yet, as broad as this typology appears, scholars have repeatedly demonstrated its predictive power, and there is psychological evidence to suggest that these fixed-response single-item indicators can be better at capturing moral dispositions than more subjective and open-ended contexts (e.g., Baker 2005; Hunter 2000; Wilson 2002). Everyday Americans may be "much better able to pick themselves out of the proverbial [moral] lineup than to describe themselves to a sociological sketch artist" (Vaisey 2009:1705; also see Narvaez and Bock 2002). Using a forced-choice question makes it easier for the respondent to identify their own cultural disposition, which is largely unconscious, and difficult for respondents to come up with themselves in an open-ended context. Findings from *Habits of the Heart* (1985) reiterate this point, frequently noting that while these worldviews are pervasive in American culture, most Americans were unaware they held them and had a hard time describing them if asked.

A host of demographic factors that might be related to giving money or volunteering are also included in all models: age of respondent in years (18 and older), gender (female = 1; male = 0), race (African American = 1; Hispanic = 1; other race = 1; white = 0), education (more than 4-year college degree = 1; 4-year college degree = 1; less than college = 0), and income (a 19-point ordinal variable ranging from a low of $5,000 or less to a high of greater than $175,000). Descriptive statistics for all of these variables are presented in Table 1.

Analytic Strategy

This study utilizes two different statistical methods, both of which provide a slightly different approach to assessing how and why Americans' behavior changed from before the spill to after the spill. The first approach uses hierarchical linear modeling (HLM) (Raudenbush and Bryk 2002). HLM is a generalization of multiple regression for nested or repeated-measures data, also referred to as multilevel contextual analysis (DiPrete and Grusky 1990; Mason, Wong, and Entwistle 1983). When there are three or more time points for an outcome, a two-level hierarchical individual growth model is especially useful for tracking individual change over time. This study follows the techniques described in detail in Raudenbush and Bryk (2002:160–202; also see Singer and Willett 2003). They succinctly describe the logic of this approach:

> Many individual change phenomena can be represented through a two-level hierarchical model. At level 1, each person's development is represented by an individual growth trajectory that depends on a unique set of parameters. These individual growth parameters become the outcome variables in a level-2 model, where they may depend on some person-level characteristics. Formally, we view the multiple observations [here as time 1, time 2, time 3] on each individual as nested within the person. This treatment of multiple observations as nested allows the investigator to proceed without difficulty when the number and spacing of time points vary across cases (p. 161).

also see Rozin et al. 1999), however, demonstrates that these cultural worldviews are *durable* habits of judgment and evaluation, are formed over many years involving complex socialization processes, are transposable across social situations, and are unlikely to change over the course of one to two months on account of an exogenous event like the BP oil spill. This body of research also demonstrates that these durable views of the self and obligation are unconscious, and rarely, if ever, do Americans consciously reevaluate them. In fact, given how deeply engrained these durable moral dispositions are, it is uncertain how one would go about changing them through their own conscious volition. Bellah and colleagues (1985) suggest from their interviews that Americans are, for the most part, unaware that they even hold a worldview; much less that they would be flexible enough to change it (see also Jensen 1995). Vaisey (2009) also finds that that these same worldviews do not change between two waves of panel data collected 2.5 years apart (from 2002 through 2005). Responding to this concern, he notes that "The two-and-a-half-year lag between waves may be longer than ideal, but since we are interested in durable moral dispositions, a lag of this length should not pose a significant problem" (Vaisey 2009:1692). Drawing from Bourdieu's concept of *habitus*, he later suggests that the fact that these persist "over a three-year period suggests that these associations are more than purely ephemeral and may in fact reflect enduring, internalized cultural schemas" (Vaisey 2009:1699). This provides evidence to expect that in the one to two months between Wave 1 and Wave 2, we should not expect a respondent's durable worldview to change.

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Table 1 • *Descriptive Statistics for All Variables*

Variable	n	*Mean*	*SD*	*Range*
Dependent variables				
Gave money (Wave 1)	1987	.05	.237	0–1
Gave money (Wave 2)	1997	.15	.366	0–1
Gave money (Wave 3)	1988	.06	.248	0–1
Volunteered (Wave 1)	1987	.02	.15	0–1
Volunteered (Wave 2)	1997	.11	.41	0–1
Volunteered (Wave 3)	1988	.01	.12	0–1
Empathetic identities				
Strong environmentalist	1997	.07	.28	0–1
Moderate environmentalist	1997	.50	.50	0–1
Nonenvironmentalist	1997	.42	.49	0–1
"Gulf" identity	1997	.11	.30	0–1
Practices and habits				
Prior civic engagement	1964	.29	.47	0–1
Uninformed about how to help	1977	2.92	1.41	1–7
Recycling	1987	.57	.42	1–5
Conserve energy	1987	.58	.49	0–1
Political affiliation				
Democrat	1997	.36	.47	0–1
Republican	1997	.24	.43	0–1
Independent	1997	.20	.42	0–1
Political other	1997	.20	.39	0–1
Culture				
Individualism worldview	1967	.31	.44	0–1
Communitarian worldview	1967	.31	.46	0–1
Theistic worldview	1967	.38	.50	0–1
Religious service attendance	1982	3.35	2.70	1–8
Demographics				
Age	1997	48.78	15.76	23–102
Female	1997	.52	.50	0–1
Male	1997	.48	.50	0–1
White	1997	.70	.43	0–1
Black	1997	.11	.29	0–1
Hispanic	1997	.13	.30	0–1
Other race	1997	.06	.24	0–1
Less than college	1997	.71	.45	0–1
College degree	1997	.19	.38	0–1
More than college	1997	.11	.30	0–1
Income	1997	10.77	4.41	1–19

HLM models for binomial variables are very similar to the format of continuous HLM models, only that the level-one equation becomes a logistic regression (Guo and Zhao 2000; Horney, Osgood, and Marshall 1995). To estimate the probability that the dichotomous dependent variable will be present (e.g., volunteered = 1) rather than not present (e.g., volunteered = 0), the level-one equation takes the general logistic regression form:

$$\log_n[\text{odds}(Y_{ij} = 1) = \pi_{0i} + \pi_{1i}(\text{Time})$$

where π_{0i} is the initial status at time = 0 (i.e., intercept), and π_{1i}(Time) is the growth parameter (slope) of individual i across time. This level-one equation estimates an intercept (π_{0i}) and slope (π_{1i}) that describes the probability of change in Y (volunteering or giving money)

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for person *i* over three time points (from Wave 1, to Wave 2, to Wave 3). Level-one does not include any independent variables (as some models do) because this study is only interested in individual change in the dependent variable (*Y*) across time, rather than the factors that account for this change. It does not include an error term because the logistic regression model is already inherently probabilistic. As Raudenbush and Bryk (2002) note in the quote above, treating multiple time points as nested excludes any problems with the data being spread out unevenly across time.

Implicit in the idea of growth modeling is that variations in the intercept *and* the slope are of interest to the researcher. The level-two equation, then, uses the slope from the level-one equation above as the outcome. This equation is written as follows:

$$\begin{aligned}\pi_{1i} = {} & \beta_0 + \beta_1(\text{strong environmentalist}) + \beta_2(\text{moderate environmentalist}) + \beta_3(\text{Gulf identity}) \\ & + \beta_4(\text{prior civic engagement}) + \beta_5(\text{uninformed}) + \beta_6(\text{recycling}) + \beta_7(\text{conserve energy}) \\ & + \beta_8(\text{Democrat}) + \beta_9(\text{independent}) + \beta_{10}(\text{political other}) + \beta_{11}(\text{communitarian}) \\ & + \beta_{12}(\text{theistic}) + \beta_{13}(\text{religious service attendance}) + \beta_{14}(\text{age}) + \beta_{15}(\text{female}) \\ & + \beta_{16}(\text{black}) + \beta_{17}(\text{Hispanic}) + \beta_{18}(\text{other race}) + \beta_{19}(\text{college degree}) \\ & + \beta_{20}(\text{more than college}) + \beta_{21}(\text{income}) + \beta_{22}(\text{Gulf}) + u_j\end{aligned}$$

Where π_{1i} is the slope change over time, and $\beta_1, \beta_2, \beta_3, \ldots \beta_{22}$ are the independent variables that influence the slope change on the dependent variable *Y*.

While these HLM models take into account all three time points to produce a single coefficient for each independent variable, this study is also interested in examining each time point *independently from one another* to assess the peaks and valleys that might occur (e.g., do certain factors predict whether an individual does *not give* at time 1, *gives* at time 2, but does *not give* at time 3?). To answer these more nuanced questions this study uses logistic regression to estimate three separate, but identical (same respondents and same independent variables), models for Wave 1, Wave 2, and Wave 3, allowing comparison across models. These models control for Wave 1 behavior in the Wave 2 and Wave 3 regression estimations. Thus, in addition to the HLM models, the results below also include these logistic regression models.

Results

How Did Americans Respond to the Spill?

Figure 4 displays bivariate results of aggregate rates of giving money and volunteering across all three waves. This figure demonstrates that, in the short time before the oil spill to after the oil spill, the percentage of the U.S. population giving money for the environment increased three fold, while volunteering for the environment increased six fold.[10] Equally important in this figure is the precipitous decline in giving money and volunteering one year later, when the disaster had faded into distant memory for most Americans. These descriptive findings are supportive of the empirical expectations above, namely, that even though there was little need for direct relief (and little given), Americans responded by channeling the moral and emotional energy of the spill into pro-environmental behavior. *But what are the factors that explain why some*

10. Supplemental analysis (not presented here, but available upon request) of nationally representative data from the General Social Survey (GSS) demonstrate that the Exxon Valdez Oil Spill in 1989 may have also caused a temporary spike in general environment "concern" among the U.S. population. The GSS does not include repeated measures of actual *environmental behavior*, so it is difficult to say whether or not this spill may have elicited any sort of real action as it did in the case of the BP spill. These data also show that in the two years following the Valdez spill, this elevated level of concern among Americans dropped precipitously. Even though the circumstances surrounding the BP Spill are unique compared to the Exxon Valdez disaster (see above), these GSS data further affirm the descriptive findings presented in Figure 4.

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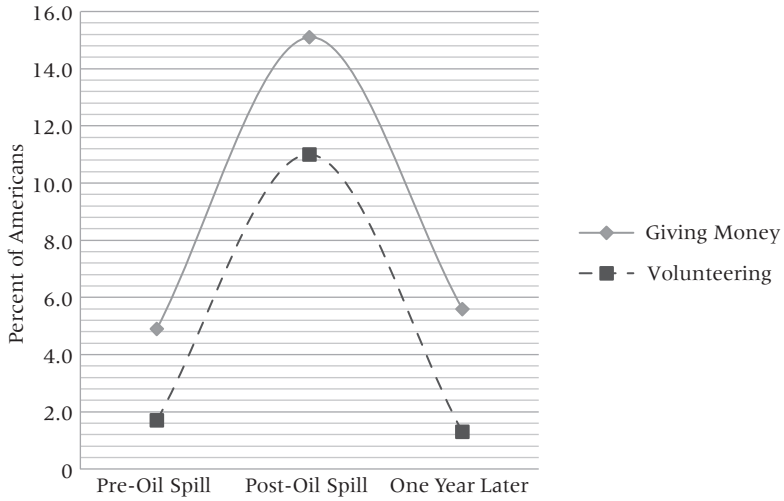

Figure 4 • ***Percentage of Americans Giving Money or Volunteering for the Environment at Wave 1, Wave 2, and Wave 3***

Source (data): Science of Generosity National Survey

people, but not others, channeled these energies into actual behavior? For this, we now turn to the multivariate HLM and logistic regression models.

Table 2 reports the estimates of the level-two effects from the binomial HLM analyses. The table displays the HLM logistic regression coefficients (β) for ease of interpretation (log of odds), but when discussing the substantive findings in the text, they are converted to odds ratios (e^{logits}). These coefficients should be interpreted as the probability of change (controlling for the starting intercepts) in giving or volunteering behavior across all three time points. Turning to the results, strong and moderate environmentalist identities were associated with increases in the over-time odds of both giving money and volunteering. For example, a strong environmentalist identity increased the odds of giving money by 3.7 times (exp[1.31] = 3.70) and volunteering by 2.4 times (exp[.88] = 2.4) over these three time periods, compared to nonenvironmentalists, and net of other factors.

Turning to practices and habits, the results show that individuals with prior civic engagement were 1.7 times more likely to give money (exp[.54] = 1.7) and 1.5 times more likely to volunteer (exp[.43] = 1.5) over this time period. Those who were uninformed about how or where to give were *less* likely than informed Americans to have done either. Environmentally related practices were also positively linked to growth in giving money and volunteering after the spill. Turning to political affiliation, the results show that net of other factors, being a Democrat significantly increased the odds of giving money after the spill by 1.45 times (exp[.37] = 1.45) and volunteering by 1.33 times (exp[.29] = 1.33), compared to Republicans. The results revealed similarly statistically significant results for political independents, yet the odds of change were slightly lower compared to Democrats.

Cultural factors also mattered for predicting behavioral change. Those with a communitarian worldview were 1.3 times more likely to give money (although this is only marginally statistically significant), and 1.65 times more likely to volunteer (exp[.50] = 1.65), than individualists. Those with a theistic worldview were not more likely to give money, but were 1.4 times more likely to volunteer (exp[.34] = 1.40), net of other factors. Attending religious services more increased the

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Table 2 • *Logistic Coefficients (β) from Binomial Hierarchical Linear Models of Giving Money and Volunteering, Wave 1 through Wave 3*

Predictor Variable	*Gave Money*	*Volunteered*
Empathetic identities		
Strong environmentalist	1.31***	.88***
	(.18)	(.17)
Moderate environmentalist	.61***	.35**
	(.128)	(.12)
"Gulf" identity	.02	−.04
	(.19)	(.19)
Practices and habits		
Prior civic engagement	.54***	.43***
	(.11)	90.11)
Uninformed about how to help	−.13*	−.120**
	(.04)	(.04)
Recycling	1.12***	.85***
	(.16)	(.16)
Conserve energy	.43**	.39**
	(.13)	(.12)
Political affiliation		
Democrat	.37*	.29*
	(.15)	(.14)
Independent	.34*	.25^{+}
	(.16)	(.15)
Political "other"	.11	−.17
	(.18)	(.19)
Culture		
Communitarian	.27^{+}	.50**
	(.140	(.15)
Theistic	−.12	.34*
	(.16)	(.16)
Religious service attendance	.04	.08**
	(.02)	(.02)
Demographics		
Age	.01**	−.01^{+}
	(.01)	(.01)
Female	.32	−.18
	(.11)	(.10)
Black	−.08	.06
	(.23)	(.20)
Hispanic	.06	.15
	(.19)	(.17)
Other Race	−.10	.12
	(.23)	(.20)
College degree	.27^{+}	.01
	(.14)	(.14)
More than college	.35*	.22
	(.16)	90.15)
Income	.02	−.01
	(.01)	(.01)
Intercept	−5.42	−3.76
	(.40)	(.33)

Notes: Reference categories are nonenvironmentalist, Republican, individualistic worldview, white, and less than college. Standard errors in parentheses. n = 1,814.
$^{+}p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$ (two-tailed tests)

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odds of volunteering, but not giving money. A one unit increase in the level of religious service attendance increased the odds of volunteering by 1.08 times (exp[.08] = 1.08).

Enduring or Fleeting?

As described above, these HLM regression coefficients are useful because they take into account all three time periods (creating a single slope for each individual) to explain why some Americans changed their behavior after the spill. Yet while this provides important insights into post-disaster responses across an entire year, we must also look at how the predictor variables operated at each of the three time points. This is especially useful for examining the rise and fall of different social influences, and to test whether or not these factors are enduring or fleeing one year later at Wave 3.

Table 3 presents separate logistic regression models for all three time periods. A strong environmentalist identity predicted both giving and volunteering at all three time points. A moderate environmentalist identity did not predict volunteering before the spill, but became significant in the wake of the spill, and then dipped back down one year later. Regional "Gulf" identity did not become a significant predictor in the wake of the spill.

Prior civic engagement was positively associated with giving and volunteering at all three time points. Being uninformed about how to get involved was not significant before the spill for either giving money or volunteering, but was activated in the wake of the spill for both behaviors. This effect faded one year later. Recycling behavior did not predict volunteering before the spill, but after the spill significantly increased the odds of volunteering by 2.86 times (exp[1.05] = 2.86). This effect also fades one year later.

Turning to political affiliation, being a Democrat was not associated with giving money before the spill, but significantly increased the odds of both behaviors in the wake of the spill, compared to Republicans and net of other factors. These effects were also fleeting one year later. Compared to Republicans, Independents were 1.54 times (exp[.43] = 1.54) more likely to have volunteered at Wave 2, but not at Wave 1 or Wave 3. Compared to Americans holding an individualistic worldview, the communitarian and theistic worldviews were positively associated with volunteering in

Table 3 • ***Logistic Regression Coefficients from Models Predicting Giving Money and Volunteering for Wave 1 through Wave 3***

Predictor Variable	*Gave Money*			*Volunteered*		
	Pre-Spill	*Post-Spill*	*One Year Later*	*Pre-Spill*	*Post-Spill*	*One Year Later*
Empathetic identities						
Strong environmentalist	2.33***	.69**	2.88***	1.89**	.81***	2.00*
	(.44)	(.24)	(.46)	(.63)	(.23)	(.80)
Moderate environmentalist	1.52***	.37*	1.60***	.94	.37*	.72
	(.39)	(.17)	(.42)	(.56)	(.15)	(.73)
"Gulf" identity	−.23	.02	−.36	−.10	.02	−1.38
	(.43)	(.25)	(.47)	(.66)	(.22)	(1.30)
Practices and habits						
Prior civic engagement	1.04***	.36*	.58*	1.22**	.31*	1.59**
	(.23)	(.15)	(.24)	(.40)	(.13)	(.57)
Uninformed about how to help	−.08	−.17**	−.08	.04	−.21***	.01
	(.08)	(.05)	(.08)	(.12)	(.05)	(.16)
Recycling	.87*	1.29***	1.17**	.41	1.05***	.28
	(.39)	(.23)	(.43)	(.59)	(.19)	(.80)

(continued)

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Table 3 • *Logistic Regression Coefficients from Models Predicting Giving Money and Volunteering for Wave 1 through Wave 3 (Continued)*

Predictor Variable	*Gave Money*			*Volunteered*		
	Pre-Spill	*Post-Spill*	*One Year Later*	*Pre-Spill*	*Post-Spill*	*One Year Later*
Conserve energy	.89**	.38*	.05	2.63*	.24	.82
	(.33)	(.17)	(.29)	(1.03)	(.15)	(.82)
Political affiliation						
Democrat	.02	.34^{+}	.49	.39	.44*	−.52
	(.32)	(.20)	(.33)	(.50)	(.18)	(.60)
Independent	.35	.29	.38	.22	.43*	−.65
	(.31)	(.20)	(.35)	(.52)	(.18)	(.63)
Political other	.23	.07	.23	.18	−.15	−1.76
	(.39)	(.24)	(.44)	(.67)	(.22)	(1.21)
Culture						
Communitarian	.48^{+}	.19	.21	.45	.72***	−.32
	(.28)	(.18)	(.28)	(.46)	(.18)	(.56)
Theistic	−.03	−.14	−.42	−.06	.59**	−1.44*
	(.33)	(.21)	(.34)	(.54)	(.20)	(.67)
Religious service attendance	.03	.04	.03	.14	.09**	.20*
	(.05)	(.03)	(.05)	(.08)	(.03)	(.10)
Demographics						
Age	.01	.01**	.02*	−.01	−.01^{+}	−.00
	(.01)	(.00)	(.01)	(.01)	(.00)	(.02)
Female	.24	.49***	.29	−.59^{+}	−.13	.25
	(.21)	(.14)	(.23)	(.34)	(.13)	(.46)
Black	.25	−.09	.13	−.44	.17	−.43
	(.49)	(.30)	(.51)	(.81)	(.24)	(1.27)
Hispanic	−.30	.28	−.07	−.25	.12	.80
	(.46)	(.24)	(.45)	(.65)	(.22)	(.70)
Other race/ethnicity	−.33	.11	−.72	.18	.12	.99
	(.47)	(.29)	(.53)	(.64)	(.26)	(.75)
College degree	.50^{+}	.11	.87**	.04	.04	−.57
	(.27)	(.18)	(.28)	(.45)	(.17)	(.63)
More than college	.81**	−.26	1.14***	.53	.09	−.28
	(.29)	(.23)	(.30)	(.44)	(.20)	(.62)
Income	.02	.03	.03	−.02	−.02	.08
	(.03)	(.02)	(.03)	(.04)	(.02)	(.06)
Time 1 (pre-spill behavior)	—	.67^{+}	1.89***	—	1.28***	3.67***
	—	(.36)	(.41)	—	(.36)	(.50)
Constant	−6.98***	−4.41***	−7.32***	−8.23***	−2.58***	−7.87***
	(.82)	(.47)	(.85)	(1.50)	(.41)	(1.59)
Degrees of freedom	22	23	23	22	23	23
Pseudo R^2	.23	.13	.3	.21	.13	.42

Notes: Reference categories are nonenvironmentalist, Republican, individualistic worldview, white, and less than college. Standard errors in parentheses. n = 1,814.
$^{+}$ $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$ (two-tailed tests)

the wake of the spill. A communitarian worldview increased the odds of volunteering by over two times (exp[.72] = 2.05), and is highly significant, net of other factors. A theistic worldview also increased the odds of volunteering by 1.80 times (exp[.59] = 1.80). Interestingly though, a theistic worldview was significantly associated with a *decrease* in the odds of volunteering at Wave 3, compared to the individualistic worldview and net of other factors. Lastly, Americans who attend

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religious services at higher rates were significantly more likely to volunteer, and were more likely to continue this behavior one year later.

Discussion and Conclusion

Initially it appeared that Americans did very little in response to the largest human-caused disaster in U.S. history (see Figure 1). They gave very little money for direct relief, and many American volunteers were turned away. Yet this study demonstrates that a disaster can generate a far-reaching response that is not targeted toward the relief efforts themselves. The events following the BP oil spill were such that Americans had to respond to the moral shock in other ways. The findings above clearly suggest that there was still indeed a substantial response by Americans in the form of philanthropic giving and volunteerism.

What implications does this study have for future work, and how does it build upon or challenge existing evidence about the consequences of large-scale disasters on volunteering and philanthropic giving? First, while the substantive implications of this research are interesting and important, this study has brought the sociology of disaster (and to a lesser extent environmental sociology) into much-needed conversation with key theoretical currents (e.g., individualism, civic participation, moral identity) at the forefront of contemporary sociology. In a recent *Annual Review of Sociology* article, preeminent disaster scholar Kathleen Tierney (2007) argues that "the sociology of disaster has developed in ways that have weakened its ties within mainstream sociology," and with "its problem-focused origins and research concerns, the field has not kept pace with theoretical developments in sociology" (p. 506). This study has sought to tie together these problem-focused concerns with broader sociological themes, as they pertain to the how and why of disaster response.

Furthermore, prior studies that have attempted to explain disaster responses have been hindered by data constraints, lacking true longitudinal and nationally representative data to make causal claims about the factors that matter before, during, and after a disaster. Since 1981, only 4 percent of studies in disaster research include true (e.g., not gathered retrospectively) predisaster measures, and 88 percent of studies use sample sizes of less than 400 (Norris 2006). Thus, the present study has tried to take a small step forward with new nationally representative data that provide a glimpse into a disaster before, during, and after it happens.

Second, this study adapts and builds upon the social movement concept of a "moral shock" to demonstrate how the interaction between a large-scale disaster and intense media coverage creates moral shock on a *national scale*. It is within this palpable emotional context that this study examines how different American identities interact with the "sense of outrage" generated by the spill, and whether or not certain Americans "became inclined toward political action" (Jasper and Poulsen 1995:498). The findings above also suggest that Stets and Carter's (2012:126) hypothesis about moral identity is consonant with Jasper and Poulsen's (1995) concept of moral shock, and may be an important tool for understanding responses to disasters more generally. The "moral situation" (Stets and Carter 2012) of Americans vis-à-vis the environment changed suddenly after the well exploded, as portrayed in the media aftermath. Yet what determined whether or not some Americans chose to give money or volunteer is in large part explained by their need to satisfy their moral identity as an environmentalist and/or Democrat.

Third, and more generally, this study also demonstrates that the moral and behavioral effects of large-scale disasters on the nation are short lived. Snow and colleagues (1998) suggest that "accidents and disasters" are especially powerful at "disrupting the quotidian"—that is, shaking people from their daily practices and routines, or their "habituated unthinking fashion" (Bourdieu 1977; Snow et al. 1998). Thus the "dramatizing" effect of oils spills in particular can effectively "change the balance of political power" and have positive mobilizing effects for environmental groups (Birkland 1998; also see Freudenburg 1997). But in the case of the BP event, these effects

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on mobilization were short lived. This suggests that the process of moral shock and quotidian disruption, and its subsequent effect on behavior, may only endure as long as the disaster does.

The only factor that was activated at Wave 2, and then remained positive and significant at Wave 3, was religious service attendence.[11] These findings contribute new insights about the *sustaining* effects of participating in a local congregation. These sustaining effects are due to the way religious congregations provide an important space to cultivate the networks, skills, and opportunities for people to get involved. This is a key difference from the broad "theistic" cultural worldview, which has a positive effect in times of need, but has a negative effect on helping over the long term. Congregations provide the skills *and* the religious teachings about environmental responsibility that can foster longer-term civic engagement (Chaves 2004; Kearns 1996, 1997; Smith 1996; Verba et al. 1995; Wuthnow 1999; Wuthnow and Evans 2002). In this sense, the effect of religious service attendance resembles prior civic engagement—a series of practices and habits, in addition to moral and theological convictions.

Fourth, this study contributes new insights to the longstanding debate in sociology about the relationship between American individualism and civic participation (Bellah et al. 1985; Beyerlein and Vaisey 2013; Lichterman 1996; Putnam 2001). Remember that Bellah and colleagues (1985) lamented that individualism posed a serious threat to the vitality of American civic life, while Paul Lichterman (1996) challenged these assumptions, and argued that individualism has the potential to *enhance* commitment to civic participation. More recently, Beyerlein and Stephen Vaisey (2013) injected quantitative analysis into the debate in support of Bellah and colleagues, finding an association between an individualist cultural worldview and lower rates of participation in community projects and religious congregation volunteering. The present study moves beyond simply affirming one side of the debate or the other, but instead uses robust measures of these concepts over time to examine two important forms of civic engagement within the context of a moral crisis. The findings above suggest that both sides of the debate may in fact be right, and what may be most important in assessing the effect of individualism on civic engagement is the specific social context in which we conduct our analysis. In "ordinary time" before the spill (Wave 1), individualists were no less likely to volunteer. Yet, in Wave 2, in the wake of the spill, holding an individualistic worldview significantly decreased the odds of volunteering, relative to communitarian and theistic worldviews. And, lastly, in Wave 3, individualists were *more* likely than respondents with a theistic worldview to volunteer. This reveals three *different* effects, which ultimately suggests that we pay closer attention to the social and moral environment within which we assess the impact of individualism on civic participation.

The central strength of this study is also a limitation. It provides a picture of the *national* response to the disaster, as opposed to how the spill was experienced by local residents. As noted throughout, there is an emerging body of work examining in more depth the *local* effects of the spill (e.g., Ladd 2012; Safford et al. 2012), most of which has focused on negative psychological effects at the individual and community level (Cope et al. 2013; Gill et al. 2012; Lee and Blanchard 2012; Osofsky et al. 2011). This article includes a measure of Gulf identity, but this blunt measure is a far cry from the local complexity on the ground. In contrast to Beyerlein and Sikkink (2008), who found a positive link between post-9/11 volunteering and a "New Yorker/New Jerseyan" identity, I did not find significant differences between those living in the Gulf and those living outside of the Gulf. But Michael Edelstein (2004) suggests that we might indeed find differences between local victims and outsiders. He points out that those living outside of affected disaster areas become much more impatient with recovery efforts, and are less likely to sustain concern over the long term (see also Ritchie, Gill, and Picou 2011). Thus, with the right micro-level data, future work might parse out these national versus local differences in who responded and why. Nevertheless, we must begin somewhere, and this study provides a much-needed focus on the

11. Factors such as prior civic engagement sustained positive effects at Wave 3 as well, but these were not "activated" in the same way as religious service attendance because they were already positively correlated at Wave 1.

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national consequences in hopes of moving toward a more comprehensive understanding of the BP event.

The distinctiveness of the BP oil spill provided a unique opportunity to refine what we know about how and why Americans respond to large-scale disasters. The level of moral outrage in the summer of 2010 produced dramatic increases in awareness and self-reflection about the consequences of the American lifestyle on the environment, and as these data show, dramatic increases in volunteerism and philanthropic giving. Yet when the spewing well was finally capped, and the flow of oil subsided, the outpouring of Americans giving and volunteering subsided along with it. This suggests that even the largest human-caused disaster in U.S. history was still not enough to affect long-lasting change in Americans' environmental behavior, suggesting that morally shocking events, while powerful, may last only as long as the event itself.

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