“Testing the Great Lakes Compact: Administrative Politics and the Challenge of Environmental Adaptation”

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Abstract. This article examines public involvement in the six-year administrative review process of Waukesha, Wisconsin’s application to draw water from Lake Michigan to replace its radium-contaminated local water supply. The article shows that public positions on the proposal inverted the typical relationship between partisanship and environmental attitudes, prompting both supporters and opponents to ignore scientific evidence and the central matter of water safety. In successive rounds of state and regional administrative review, these political stances induced administrators to engage in increasingly legalistic forms of assessment. Although Waukesha’s application was approved in 2016, these administrative dynamics may limit the ability of the recently-enacted Great Lakes Compact to address current and prospective water safety problems in the region. The case typifies an emerging pattern in water governance in the United States: contentious administrative politics drive cooperative agreements to resemble adversarial proceedings, in turn limiting their ability to adapt to new environmental problems.

Keywords: administration; environment; federalism; Great Lakes Compact; water

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Introduction

In early 2016, the city of Waukesha, Wisconsin was nearing the final stages of a six-year approval process to draw water from Lake Michigan, located about 10 miles from the city limits. Waukesha sought water from Lake Michigan to replace its existing water supply. This supply, drawn from a deep aquifer lying beneath the city, is contaminated with radium, a naturally occurring radioactive heavy metal that is an acknowledged health hazard. The levels of radium in the water supply had been increasing over time, and the city contended that no alternative water sources or treatment methods could reliably provide safe drinking water without serious adverse environmental effects. The city's application for a diversion of Lake Michigan water had been under review in the state of Wisconsin since 2010. With Wisconsin's approval, the application was forwarded to a relatively new pair of regional administrative bodies that included representatives of the eight Great Lakes states, as well as the Canadian provinces of Ontario and Quebec. These new agreements were unproven; Waukesha's application was widely acknowledged to be a key test of their viability.

In superficial respects, Waukesha's situation resembles the recent water safety crisis in Flint, Michigan: both are mid-sized cities in the Great Lakes region facing the problem of heavy metal contaminants in drinking water. Of course, these parallels are limited: high levels of lead were introduced into Flint's water as a result of gross mismanagement and callous indifference to public health,¹ whereas radium entered Waukesha's water supply as a result of natural processes. The health hazards in Flint were also far more severe. Yet the two cases are similar enough that one might expect that Flint would have merited some mention during the regional review process, which began in February 2016, immediately after the crisis received national attention.

However, neither administrators nor civil society actors involved in the regional review of Waukesha's application made any acknowledgment of Flint, or of the persistent problems of water safety in the Great Lakes region. That absence is closely related to the explanatory goals of this article.

This article has two purposes. First, using a large volume of material from public comments and hearings, the article examines public participation in the review process for Waukesha's diversion application, including three rounds of administrative review in Wisconsin, two rounds of regional review, and a regional appeal hearing. This public participation is notable for two reasons. First, the stances taken on the proposal were precisely opposite those that overall partisanship would seem to predict: the supporters were Republicans from wealthy, predominantly white suburbs; the opponents were environmentalists and community groups. This pattern is explicable by the local political context, which includes recent patterns of contention arising from Waukesha County's support for Governor Scott Walker, as well as persistent, high levels of racial segregation and racialized politics in the Milwaukee metropolitan area. It is nonetheless significant that partisanship was so readily subordinated to immediate commitments in the case at hand. Second, supporters and opponents both elided the key regulatory and scientific facts in the case. Supporters sought a new, safe drinking water supply but rarely made any acknowledgment that the existing water supply was unsafe, or that Waukesha was legally obligated to resolve the situation. Opponents denied the necessity of a new drinking water supply, in many cases by entirely ignoring the water safety issue or rejecting environmental scientific findings. Both sides displayed a high level of politically-motivated ignorance of scientific findings.

The second purpose of this article is to examine the administrative consequences of these political positions. The political position-taking drew attention away from the core issue of access to safe drinking water. This also defined the agenda for state and regional administrators, who were thus encouraged to evaluate Waukesha's proposal with reference to narrowly legal criteria, and avoid a confrontation of larger environmental issues facing the Great Lakes region. The Waukesha proposal came before regional actors at a moment when institutional adaptation was possible, and when concern about water safety was high. The legalistic character of the debate over the specific proposal foreclosed upon the possibility that the new Great Lakes Compact could adapt to advance a water safety and water justice agenda. The prolonged contention over Waukesha may also make other communities in the region—nearly all of which have fewer financial and legal resources than Waukesha—less likely to seek access to Great Lakes water, even if such water would be the best means of resolving serious local water safety problems. For this and other reasons, this article takes the view that the pattern of opposition to Waukesha's proposal adversely affects the ability of regional bodies to promote equitable access to water, even though Waukesha itself is a wealthy, politically influential community whose government has behaved unsympathetically.

The discussion will show that this politically-induced shift away from matters of science and public safety is a more general problem for water governance in the United States. The process by which the Waukesha application was assessed—notice-and-comment rulemaking—has many shortcomings. It also has notable virtues: decisions are taken by administrators with substantive expertise, and rulemaking is neither an adversarial process, nor one constrained by precedent in the same way as the American judicial system.² Rulemaking allows the public to define an agenda without the simple balance of popular opinion serving to dictate the result. It is

therefore a framework that admits of compromise outcomes, and can adapt to emergent environmental problems in a way that statutes and case law generally cannot. In the case at hand, the parties defined an agenda that oriented the review process away from the substantive expertise of environmental administrators, and toward matters of legal interpretation. This is a pattern that transforms water management into an undertaking occurring in the “shadow of the courts,” and thereby induces cooperative regional agreements to more closely resemble an adversarial legal proceeding.³ From an environmental justice standpoint, this is likely to be an undesirable outcome: American water law itself is one of the most significant impediments to the allocation of water to communities facing scarcity or safety problems.

Partisanship, Environmental Attitudes, and Ignorance

The relationship between political ideology, partisanship, and environmental attitudes is well-studied. A substantial body of research has shown that the activity of the Republican Party has become a great obstacle to environmental protection in the United States, as well as international efforts to address climate change. Republican hostility to environmental protection is relatively new. Historically, environmental attitudes did not map onto partisan divisions.⁴ A partisan division on environmental issues began to emerge in the 1990’s, in part as a consequence of a more general resorting of party ideology and issue ownership.⁵ This division, which has become more pronounced over time, derives from several sources: attitudes about federal spending for environmental protection,⁶ distrust in or devaluation of science,⁷ and political distrust, which may reduce support for environmental protection even among those who accept environmental scientific findings.⁸ A substantial proportion of recent research on partisanship and the

environment is specifically concerned with climate change. Views about climate change policy, which addresses a global process, may be influenced by factors not at play in environmental issues arising at a smaller scale.⁹

Overall partisan attitudes about environmental protection would not seem to predict the divisions that arose in the case of Waukesha.¹⁰ However, it is common for local water management outcomes to deviate from those expected by broader patterns of political ideology or partisanship. Research has consistently found that position-taking reflects the subjectively-defined interests of the local actors involved, rather than ideology in general or the particular facts at hand.¹¹ Given that hydrological systems, and the legal authority to regulate them, routinely traverse political boundaries, such position-taking is typically nested within complex sets of national, regional, and local governments. Contention across scales of government, which often possesses a partisan dimension, is therefore a conspicuous and particularly important feature of water politics.¹² Research on water politics has focused particularly on Latin America, where mass mobilization remains an important factor in water policy outcomes.¹³ Popular mobilization was also an important feature of water politics in the United States through the 19th Century.¹⁴ This pattern has changed: through the 20th Century, water management in the United States became deeply bound up in complex administrative politics,¹⁵ and less frequently, litigation and judicial mobilization.¹⁶

As water has come to be increasingly defined as a resource to be managed by administrative agencies, the rulemaking process has become the primary venue for public participation in water-related policymaking in the United States, both nationally,¹⁷ and in states such as Wisconsin.¹⁸ In administrative rulemaking processes, public participation rooted in opinion and sentiment butts against the technical orientation of agency regulators, often with

undesirable and unexpected results.¹⁹ This pattern of misunderstanding and misalignment of priorities may be particularly apparent in environmental protection and environmental justice issues.²⁰

Geographic scale, political interests, and decision-making frameworks all have an effect on the development and resolution of environmental management issues, especially at the local level. This makes certain kinds of regulatory outcomes unpredictable, particularly when a dispute involves two or more governmental actors. But in the specific case of environmental hazards, such contention characteristically results in a regrettably predictable outcome: environmental hazards are sited disproportionately in areas where residents are poor or belong to marginalized minority groups. Environmental justice research developed largely to explain (and resist) this common pattern.²¹ Much of the research in this tradition has been cross-sectional, creating ambiguity about the historical processes that produce this observed pattern of environmental inequality.²² Recent longitudinal work has traced out a set of interrelated processes that result in environmental inequality at the local and regional levels. New hazards are more likely to be sited in vulnerable communities, and the presence of known hazards in turn produces patterns of residential mobility and turnover that tend to reinforce this inequality.²³ Successful efforts to call attention to issues of local environmental inequality also tend, in various ways, to promote gentrification as areas become environmentally safer.²⁴ Gentrification also tends to displace poor and minority populations to areas with known environmental hazards.²⁵ In the United States, the intensification of environmental problems such as water shortages is also frequently seized upon as an opportunity to promote urban economic development.²⁶ This pattern is particularly pronounced in localities under Republican electoral control, or where Republican support is high.²⁷

Crucially, this general pattern obtains for *known* environmental hazards. Two kinds of ignorance may result in patterns of exposure that differ from the typical pattern of environmental inequality described in environmental justice research. First, knowledge of the locations of environmental hazards is often lost over time, especially during post-industrialization, resulting in patterns of exposure that are unrelated to race or class, or are particularly concentrated in wealthy residential areas.²⁸ Second, the existence of environmental hazards may be totally unknown until an advance in scientific knowledge, or a crisis, brings these hazards into view. Postindustrial landscapes are particularly apt to produce “surprises” that create a challenge for science and public policy.²⁹

Even with good intentions, ignorance poses a serious challenge for environmental management. However, ignorance can also be deployed strategically for self-serving ends.³⁰ In many cases, deliberately maintaining ignorance about scientific facts provides organizations with a wider scope for strategic action: both private firms and government regulators have been found to actively cultivate ignorance.³¹ In public debates about environmental issues, “normatively motivated ignorance” often arises.³² Climate change denial is the most significant example of an elaborate, strategically-organized form of normatively motivated ignorance.³³

The following sections of the article will argue that strategic ignorance of environmental risk was the defining feature of the debate about the Waukesha water diversion proposal. Supporters and opponents of the proposal both contrived to remain (or become) ignorant of crucial facts about the case. The diversion proposal was set in motion by a legal finding that the levels of radium in Waukesha’s water supply exceeded federal limits. From the beginning of the process to the end, all of the relevant administrative decision-makers accepted that this was a valid finding that reflected a legally established (and presumptively scientifically sound) fact that

drinking water containing radium is hazardous to health. Foregrounding this hazard would seem to have been one of the strongest arguments in favor of the water diversion, yet supporters pressed the application for years without making any meaningful appeal to or acknowledgment of the legitimacy of the EPA's authority, or speaking directly about radium as a health hazard. Many opponents, for their part, entirely misrecognized the nature of the Waukesha proposal, treating the question as one of improvident consumption, rather than persistent water contamination. In an early, tone-setting statement of opposition, a politician accused Waukesha of pleading "for the right to take millions of gallons of Lake Michigan water a day to keep its outside-the-basin luxury housing and commercial development going."³⁴ Many other opponents suggested that Waukesha should use techniques that would bring the radium level just below the legal threshold for federal action—that is, to obey the strict letter of EPA regulations, rather than the general intention of such regulations to assure provision of safe water.

This inattention to the central environmental fact—that Waukesha's water supply had become unforeseeably contaminated—was plainly tied to politics; neither major camp could square its specific position with more general attitudes about environmental protection unless this point was elided. This prompted public participation that became increasingly oriented toward issues of administrative law. Public emphasis on such issues in the review process defined an agenda that obliged administrators, who are experts in environmental protection rather than law, to devote their attention to parsing the texts of regional water agreements. What disappeared from the review process was any acknowledgment that water safety is likely to be the defining water management challenge for the Great Lakes region in the future. The failure of public commenters, and thus of regional administrators, to make any acknowledgment of the Flint crisis, or the environmental and historical factors that make similar crises likely in the

future, amounts to a serious lost opportunity. This initial test of recent regional agreements could have served to prepare a regulatory framework that can adapt to unexpected water safety problems in the Great Lakes region. The discussion will argue that the manifestation of political conflicts in the rulemaking process, when coupled with aversion to legal and scientific uncertainty, constitutes one of the most significant impediments to effective management of water problems in the United States.

Governance of the Great Lakes and the Great Lakes Compact

Although informal agreements for managing the Great Lakes have existed for more than a century, a legally binding framework did not exist until 2008, when the eight Great Lakes states completed the approval and ratification process for the Great Lakes-St. Lawrence River Basin Water Resources Compact (commonly known as the Great Lakes Compact, hereafter “GLC”). The primary function of the GLC is to ban the diversion of Great Lakes water outside of its natural drainage basin, thereby allaying long-standing anxieties that the water might be sold in large volumes to other countries, or to water-hungry cities in the American Southwest.³⁵ The GLC is also notable for being a Congressionally-approved agreement that directly acknowledges the environmental threat posed by climate change. The GLC is complemented by the Great Lakes-Saint Lawrence River Basin Sustainable Water Resources Agreement (hereafter, the “Regional Body”), a formally analogous water management agreement that includes the Canadian provinces of Ontario and Quebec as well as the Great Lakes states. The ratification of an agreement that unambiguously bans diversion of water outside of the basin is the result of nearly a century of regional cooperation, which began with the International Joint Commission

(IJC), created in 1909, and continued in the Great Lakes Charter, created in 1985. Like its precursors, the GLC is primarily an agreement about water quantity and allocation; it contains some language about water quality, but its primary activity is tracking the volume of usage of Great Lakes water, changes in lake levels, and the like.

Cooperative governance of the Great Lakes, from its inception, has been particularly concerned with the problem of diversions: Chicago's massive diversion of water from Lake Michigan, and the prospective threat of similar diversions, was the main preoccupation of the IJC from its beginnings.³⁶ A substantial quantity of water leaves the Great Lakes Basin for the Mississippi River at Chicago. This is a consequence of the city's infamous decision to reverse the direction of the Chicago River by constructing the Chicago Sanitary and Ship Canal in 1900. The diversion has persisted in the environmental imagination as a glaring instance of short-sighted and crude exercise of human power over "first nature."³⁷ Although it would now be possible to address water quality issues in Chicago by less drastic means, the diversion has persisted—a Supreme Court settlement in 1930 gave Chicago permanent rights to the diversion.

In Section 4.9, the GLC provides for two very limited exceptions to the ban on diverting water from the Great Lakes Basin; the legal meaning of the requirements of this section eventually became the main subject in the review of Waukesha's application. First, a local community that physically straddles the dividing line of the watershed may use water from the Great Lakes, provided that the community receives state approval and returns the diverted water to the basin after use and treatment. In addition, a community that rests outside of the Great Lakes Basin, but within a county that physically straddles the basin, may use water if it receives the approval of its home state, unanimous approval of the eight member states' representatives to the GLC, and returns the water to the basin after use and treatment. This "straddling county"

provision acknowledges that the Great Lakes region is functionally defined in social, economic, and political terms as well as by hydrophysical boundaries.

The potential geographic scope of the straddling county provision is considerable. Across the region, the population of communities in straddling counties is quite large. Excluding Illinois, which is covered by the older legal provisions surrounding Chicago diversion, there are nearly two million residents in communities resting outside of the basin, but within basin-straddling counties. However, the straddling county population is highly fragmented. Only three municipalities in this zone—Waukesha, WI, Canton, OH, and Utica, NY—have populations over 50,000. The mean population of a community in a straddling county is less than 4,000, and the median population barely above 1,000. Figure 1 displays the locations of communities within straddling counties in the U.S. Great Lakes watershed.

Figure 1. Location of Communities Potentially Covered by the “Straddling Counties” Provision.

Waukesha's application for a diversion is the first to invoke the straddling county provision. Hostility to Waukesha's application for access to water from Lake Michigan undoubtedly owed, in part, to the relatively unsympathetic behavior of the city government. Historically, Waukesha was renowned in the region for the purity of its numerous water springs, so much so that the city of Chicago at one point made an extralegal bid to appropriate these waters.³⁸ These springs were eventually destroyed by suburban development, and the city developed a new water supply system drawn from a deep underlying aquifer. Over time the water table in the aquifer dropped by some 350 feet, resulting in progressive increases in the concentration of radium in the city's water.³⁹ The very existence of radium was unknown at the time Waukesha was founded, and the element's presence in the water supply could not have been foreseen. In 2000, the EPA issued new, more stringent rules for permissible concentrations of radionucleotides in water.⁴⁰ The radium concentrations in Waukesha's water supply were high enough to require serious remediation under this new standard.

Rather than immediately seeking to address the hazard, the city filed a suit challenging the science underlying the new rule. In cooperation with representatives of the mining industry, Waukesha argued that the EPA relied too heavily on relatively old studies of the effects of radium exposure.⁴¹ The merits and underlying motivations for this claim met with considerable (and well-deserved) skepticism when it was unsuccessfully brought before the Court of Appeals for the District of Columbia Circuit in 2003. In the following years, the GLC was ratified, and Waukesha began developing an application for a diversion of Lake Michigan water in order to comply with legal orders, which mandated implementation of a permanent solution to the problem by 2018.

The Waukesha Diversion Proposal

The City of Waukesha submitted its water diversion proposal to the Wisconsin Department of Natural Resources (WDNR) in 2010. In brief, the city proposed to cease using its deep aquifer wells as a source of water, on the view that the safest means of addressing the radium problem was to leave the radium underground. Waukesha would purchase lake water from a city bordering Lake Michigan: Milwaukee, Oak Creek, and Racine were all considered as possible sellers in the initial proposal. The water would be transmitted to Waukesha through a new pipeline. After use and treatment, the diverted water would be returned to Lake Michigan via a tributary. In the initial proposal, this was to be Underwood Creek, though the proposal was later changed to the larger Root River, a tributary that empties into the lake at the city of Racine, WI. The city applied for a diversion of 10.1 million gallons a day, which was to be distributed in Waukesha, as well an expanded water service area that would include portions of the Town of Waukesha, Town of Genessee, Town of Delafield, and City of Pewaukee not already connected to the City of Waukesha's water infrastructure.

The proposal underwent several rounds of administrative review in the following years, and at each stage public comment on the proposal was invited. WDNR initiated a "scoping" rulemaking process in 2010; at this stage, parties can offer input on topics that should be considered germane to assessment of the proposal. This scoping discussion continued through 2011, and included three public meetings, consultation with tribal groups, as well as submission of written comments from the public. The city's revised diversion application, submitted in 2013, was 2,300 pages in length. General rounds of rulemaking were held in 2013 and 2015; in 2015, the written notice and comment process was supplemented by public meetings in the cities of

Waukesha, Milwaukee, and Racine. In January 2016, WDNR published its declaration of findings, which approved the city's proposed water diversion. The state then forwarded the application to the Regional Body.

At the regional level, environmental agencies from the other seven Great Lakes states and two Canadian Great Lakes provinces produced reviews of the application and submitted written questions and concerns to WDNR. The regional body also held an open commenting period for the entire region. In addition, the state of Michigan opened a separate notice and comment process on the proposal. In April 2016, the Regional Body met in Chicago for a series of public meetings on the proposal; these meetings dealt with a wide range of concerns and objections, and did not result in a consensus recommendation. In a second series of public meetings in May, the parties expressed consensus approval for a modified form of Waukesha's proposal. (The modifications and their significance will be discussed below.) The GLC, which holds the final administrative authority on the matter, unanimously approved the modified proposal on June 21, 2016.

This process produced an extensive body of public records available through the websites of WDNR and the GLC.⁴² These records, which constitute the primary source of data for this discussion, and include some 17,000 form comments, 1,200 specific comments (some brief, and some running to hundreds of pages), 1,300 pages of transcripts of public meetings, and many thousands of pages of technical documents such as memoranda, impact statements, and reviews. Public input on the proposed diversion was overwhelmingly negative at every stage of the process. Various form comments, produced primarily by environmental groups, were almost uniformly opposed to the diversion. More than 80% of unique comments were also opposed to the diversion.

Table 1 summarizes the number of unique and form comments submitted at each stage of review, as well as their general stance on the proposal. This table excludes comments from the scoping process, as those comments were not meant to speak directly to the merits of the proposal, but only to the relevant grounds on which the proposal was to be assessed. During the rulemaking process in Wisconsin, the division of opinion was both geographic and partisan. Nearly all comments in favor of the diversion came from Waukesha or its immediate neighbors; comments in opposition were distributed throughout the state, but were particularly concentrated in Milwaukee and Racine.

Comment Round	Against	Neutral	Favor
Wisconsin 2013			
<i>Form</i>	3673	0	0
<i>Unique</i>	48	15	4
Wisconsin 2015			
<i>Form</i>	3239	0	32
<i>Unique</i>	287	16	57
Regional Body 2016			
<i>Form</i>	10232	0	0
<i>Individuals</i>	549	7	45
<i>Tribes / First Nations</i>	11	0	0
<i>Officials & Gov'ts</i>	14	0	11
<i>Other Organizations</i>	33	3	29
Michigan 2016	61	3	19
Totals			
<i>Form</i>	17144	0	32
<i>Unique</i>	1003	44	165

Table 1. Summary of Comments on Waukesha Diversion Proposal

Although the legislature played no formal role in evaluating the proposal, a number of members of the Wisconsin State Assembly submitted comments on the proposal as interested parties. All of the legislators supporting the proposal were Republicans; all of those opposing the proposal were Democrats. (The geographic distribution of representatives also offers some suggestion of the high spatial polarization of political sentiment in the Milwaukee area.) In addition, state legislators from elsewhere in the Great Lakes region submitted comments on the

proposed diversion, all of which expressed opposition to the proposal. A total of 39 legislators from outside Wisconsin signed comments opposing the diversion: 32 Democrats, and 7 Republicans.

Figure 2 shows the stances taken by State Assembly members representing communities in the Milwaukee area. This pronounced partisan split calls attention to past and current patterns of political division in the state. Waukesha County is wealthy, predominantly white, and solidly Republican; along with other Milwaukee suburbs, Waukesha has been the most important and reliable base of electoral support for Wisconsin Governor Scott Walker, whose tenure has been extraordinarily divisive. The Milwaukee metropolitan region also has some of the highest and most persistent levels of racial segregation in the United States,⁴³ and in light of the demographic composition of the metropolitan area, the population of suburban Milwaukee is extraordinarily white.

State Assembly Positions on Waukesha Diversion

Figure 2. Positions taken by Wisconsin State Assembly Members in the Milwaukee Area.

A substantial body of evidence connects the metropolitan area's striking racial disparities—by many measures, the most severe in the United States—to discrimination and racialized politics in the Milwaukee suburbs.⁴⁴ This history is alluded to in comments submitted by both citizens and elected officials in Milwaukee. The best indication of the depth of political divisions in the metropolitan area was Milwaukee's willingness to forego substantial revenue. Waukesha's initial proposal for a diversion identified Milwaukee as the preferred seller of Lake Michigan water; Milwaukee has long used suburban water sales as a revenue-generating device.⁴⁵ However, elected officials in Milwaukee were unwilling to sell water, despite their acknowledgement that the city's existing water infrastructure was more than robust enough to

handle such a sale—in effect, the sale would have been pure windfall revenue for the city.⁴⁶ Waukesha and Oak Creek later signed a letter of intent to conclude a water sale agreement pending approval of the diversion application.

Indeed, the well-founded perception that Milwaukee suburbs have historically pursued economic growth at the expense of the center city figured in the most strongly voiced initial objection to the proposed diversion, namely, that the proposal was a growth strategy rather than an environmental necessity. An extreme version of this view is reflected in the numerous comments that wholly misrecognized the underlying rationale for Waukesha's proposal. These comments made no acknowledgment of water safety issues, instead arguing that Waukesha should engage in more serious efforts at water conservation. Reductions in water usage, of course, would not have any direct effect on the quantity of radium present in the water.

Other comments took the subtler view that Waukesha was using the provisions of the GLC as a means of appropriating a resource that could be used to promote economic development. These commenters correctly noted that the proposed volume of water to be diverted was substantially higher than the city's current usage, as well as its projected future usage under any reasonable population scenario (owing in part to existing conservation efforts, the city's water usage has steadily declined). These comments also expressed concern about the proposal's expansion of water service to neighboring communities. The commenters charged that this was, in effect, an effort to use access to lake water, not ordinarily available in the western Milwaukee suburbs, as an inducement for development.

The tone of the comments submitted in favor of the proposal is arguably consistent with this skeptical view. Although a number of private citizens in Waukesha commented in favor, sometimes adverting to personal concerns about water safety, most favorable comments,

including the most effusive, came from local elected officials, business associations and banks, realtors, and representatives of the trade unions most likely to be employed in the construction and maintenance of new water infrastructure. These comments employed a booster rhetoric of competitiveness, desirability, and job creation that made no overt reference to the hazards of radium or the legal mandates to improve the city's water quality. Although these facts served as the legal and administrative rationale for the proposal, they were kept out of view.

In the 2013 round of commenting, many other rationales for opposition were articulated; in addition to the preceding criticisms related to growth, a number of comments expressed concern about the environmental impact of returning treated water to Lake Michigan through existing watersheds.⁴⁷ Commenters also frequently expressed concern that granting a diversion to Waukesha would undermine the viability of the GLC. Some of those comments invoked the peril of “death by a thousand straws,” the possibility that too easy access to diversions in straddling communities would harm the Great Lakes. Other commenters seemed to perceive, incorrectly, that a diversion to Waukesha would make larger out-of-basin diversions possible—banning such diversions was, in fact, the primary legal achievement of the GLC.

In 2015, comments submitted in opposition to the diversion advanced these same arguments, but cast them in more directly legal terms. Concerns about the environmental effects of return flow were presented as a question of uncertainty, claiming that the potential effects on the Root River had not been adequately studied. Many comments argued that the expansion of water service beyond Waukesha city limits was legally inconsistent with the definition of “community” in the GLC. Others stressed the precedential character of the Waukesha proposal, arguing that rejection of the diversion was vital to establishing the GLC as an enforceable agreement. Comments characteristically urged an extremely stringent interpretation of the

provisions of the GLC, arguing that diversion applications should be rejected if at all possible. Some claimed diversions were permissible only as a last resort, a somewhat exaggerated view of the GLC requirement that there be no “reasonable water supply alternative.”

In 2015, these interpretations of the GLC were advanced alongside support for an alternative water proposal developed by an environmental group, the Compact Implementation Coalition (CIC). The CIC, drawing from an alternative study produced by GZA GeoEnvironmental, Inc., suggested that Waukesha could bring radium levels below the federal limit by blending together water from the most contaminated deep wells with water drawn from cleaner deep wells, as well as shallow wells not contaminated with radium. This alternative would also have involved additional treatment of the water; disposing of the byproducts of this treatment, referred to by WDNR as “sludge,” would have required the construction of a sludge removal pipeline, along with some method for disposal. Because this substance would be too radioactive and saline to deposit on the surface, disposal likely would have required injection wells.⁴⁸ Supporters of the diversion mustered a number of technical and infrastructural responses to these arguments.

In 2016, the WDNR approved Waukesha’s diversion proposal with very few significant modifications. WDNR’s approval of the Waukesha proposal triggered a regional review. Opponents of the diversion were correct in noting that workability of the Regional Body and the GLC was not yet proven. The GLC is vague about the rules and mechanics of the regional review process. A later supplement to the GLC, known as the Interim Guidance, also left many gaps. In practice, regional review took a form very similar to the state rulemaking process. The regional review involved a public commenting period, formal review by state and provincial

agencies, a fact-finding tour of Southeast Wisconsin, formal consultation with tribes and First Nations, and a series of public hearings involving the representatives of the states and provinces.

Comments submitted during the regional review process had converged on an almost purely legal set of objections. Several sets of form comments were submitted in large numbers. These uniformly asserted that the proposal was legally inadequate—it “violates the Great Lakes Compact,” “does not pass legal muster,” or “fails to meet requirements of the Compact.” These comments also emphasized the relative novelty of the agreements, arguing that approval Waukesha’s application would constitute a “dangerous precedent.” These comments regularly employed language that mirrored the criteria set forth in Section 4.9 of the GLC, particularly focusing on the matter of “reasonable alternatives” and the legal definition of a “community.”⁴⁹

The public hearings focused on the major arguments advanced by opponents at the state-level. The Regional Body expressed skepticism about the large quantity of water requested by Waukesha, as well as the necessity of the city’s proposal to expand its water service into parts of four neighboring municipalities. The regional body also expressed concern that the proposal, as written, did not provide for sufficient monitoring of the environmental effects of returning diverted water to the Lake through the Root River. During a series of hearings in April and May 2016, the regional body fashioned an alternative that reduced the maximum quantity of diverted water from 10.1 to 8.2 million gallons a day, eliminated the proposed expansions to the water service area, and provided for enhanced environmental monitoring of the effects of return flow. These deliberations thus recognized the substantive validity of many of the objections raised by opponents of the diversion, and produced what is arguably a fair compromise on the specific proposal: Waukesha secured permission to access a safe water supply, while opponents succeeded in limiting the diversion to a level proportionate to demonstrable existing need.

Further, the regional deliberations went some way in establishing that the GLC is a functional agreement with a workable and transparent procedure for assessing proposals; the public meetings attracted considerable regional media attention, as well as a sizable number of observers.

Yet the GLC's approval was not the final legal action on the matter. In September 2016, the Great Lakes and St. Lawrence Cities Initiative (GLSLCI), representing a group of mayors in the region, submitted a formal request for the GLC to hold another hearing to reconsider the decision. The petition recapitulates the legal objections raised in earlier rounds of rulemaking. The petition also presented two new arguments grounded in unresolved ambiguities in the provisions of the GLC. First, the GLSLCI notes that the circumscribed version of the application approved by the regional body was not itself made formally available for public comment. Whether such revised applications must be open for a public notice and comment period is a matter on which the GLC is not clear. Second, the GLSLCI argues that the GLC, which does not contain a definition of what is reasonable, erred in accepting Wisconsin's legally-enacted definition of a "reasonable alternative" water supply.⁵⁰

In March 2017, the GLC held "oral arguments" on the GLSLCI's objections; in preparation for this hearing, both the GLSLCI and Waukesha submitted written briefs. The GLSLCI's two main contentions were accepted by both parties as questions of administrative law of the kind ordinarily handled by courts; both parties also accepted that the text of the GLC should be read according to the legal standards applied to a contract. In this way, political contention over the Waukesha proposal, which had from the start involved a studied avoidance of the substantive water safety problem, has finally shifted the administrative process into adversarial legalism. This format has been adopted despite the fact that GLC representatives,

who are senior officials in their states' respective water quality or environmental protection agencies, are not judges or experts in administrative law.

Public position-taking on the Waukesha diversion proposal has, from start to finish, reflected deep partisan divisions. Because the valence of this particular case is opposite that of typical environmental attitudes, both parties to the dispute have found it congenial to avoid the core issue: government's legitimate interest in assuring public access to safe water. Although the present objections to the diversion proposal are much the same as they were in 2010, these objections have been stated in progressively more legalistic terms over time, drawing the matter of water safety out of view and shifting the review process away from the substantive competence of administrators. The following section will argue that this orientation is likely to limit the ability of Great Lakes governance agreements to adapt to future water safety problems. The discussion will also argue that this issue is not unique to the Great Lakes: cooperative water governance agreements in the United States often face the challenge of adapting to novel environmental problems. Such problems characteristically create intergovernmental disagreements, frequently with a partisan character. These disagreements tend not to result in compromises or negotiated adaptation of existing governance frameworks. Rather, these conflicts evolve away from the necessary uncertainties of scientifically-informed policy, and toward adversarial, legal forms of disagreement, resulting in a failure of adaptation.

Discussion

In many respects, the Waukesha diversion proposal is a typical example of an administrative review process on a contentious topic: the proposal attracted substantial, overtly political

attention from the public, which administrators attended to selectively in the course of a slow evaluative process. What was absent from this process—namely, a discussion of environmental justice or water safety—is just as significant as what was present.⁵¹ Supporters of the proposal, who represented interests unsympathetic to environment regulation and public goods more generally,⁵² pressed their application for safe water without making reference to the scientific evidence of danger or the legal order to provide residents of Waukesha with safer water. Opponents of the proposal, mainly environmentalists or representatives of historically marginalized communities, likewise did not directly acknowledge that residents of Waukesha were in need of access to safe drinking water.

Save for a group that invoked the region's history of racial discrimination as a reason for denying the application, no involved party framed the matter as a question of environmental justice. Because the substance of the regional review was defined almost entirely by public input, this produced a third remarkable absence: environmental officials from the Great Lakes spent weeks in spring 2016 discussing a municipal water safety issue without making the slightest acknowledgment of the recent crisis in Flint, or the possibility that municipal water safety is an issue that regional administrators are likely to face again in the future. These absences are suggestive of the maladaptation of Great Lakes water governance to matters of environmental justice and equity.

The environmental justice approach takes the view that “freedom from environmental harm should be a right protected by the state, not a privilege available only to wealthy whites and others with means.”⁵³ A wealthy, conservative, predominantly white city like Waukesha is therefore an unlikely poster child for environmental justice. Yet the Waukesha diversion proposal should be understood as a matter of environmental justice, for two reasons. First, and

simply, wealthy communities need safe water, too, and denying such a community access to a public source would make safe water a private good. In-home filtration systems can remove a great deal of radium at the tap, provided that the household can afford such a system and has access to information that makes the benefit of such a system apparent. It is doubtful that Waukesha is unique in this respect: the low density of public goods and services is a persistent problem in suburban communities in the United States. The ongoing suburbanization of poverty and immigration has created increasingly serious within-community inequality concerns, in addition to more familiar between-community inequalities arising from white flight and redlining.⁵⁴

Second, it is likely that communities at the edge of the Great Lakes Basin will experience unexpected water safety problems in the future: the region's industrial history is buried but not gone. Effectively addressing this prospective problem requires adaptable regulatory institutions that acknowledge the provision of safe water as a key goal. However, most American water management agreements do not acknowledge drinking water access or water safety as enjoying special priority.⁵⁵ The GLC may be counted among the agreements that fail to do so. The criteria specified in the straddling county exemption in the GLC are implicitly guided by the belief that a growth-related water shortage, rather than a water safety problem, would be the reason why cities would seek a diversion of Great Lakes water. The diversion application process in the GLC is in many respects poorly adapted to addressing safety or contamination issues. As the Waukesha case has shown, the diversion approval process is very slow. Careful consideration is of course desirable, but the structure and pace of the existing regulatory process is plainly much more appropriate for addressing water shortages related to municipal growth. In a water-rich

region, such shortages develop slowly, and a variety of policy tools are available to reduce water usage or manage demand. By contrast, water safety issues may arise very suddenly.

The Flint, Michigan water crisis is an extreme example of the compounded effects of conflictual intergovernmental relations, politically motivated ignorance of water safety issues, and political vulnerability arising from concentrated racial segregation and poverty. Flint had long purchased water from Detroit; that pipeline provided Flint with water from Lake Huron, a relatively pure and safe source. The crisis developed when a gubernatorially-appointed emergency manager switched the city's water supply from Lake Huron to the local Flint River as a cost-saving measure. The Flint River water, which had been seriously contaminated by industrial activity running as far back as the 1930's, began to corrode the city's water pipes, dissolving large amounts of lead. Flint had preferred, for good reason, to draw its water supply from the Great Lakes rather than a hazardous local source. This preference about water sourcing—as well as local political control over such decisions—was overridden by state-level political actors from an opposing political party who framed the question of water supply purely as one of cost, not quality or safety.⁵⁶ As the problem worsened, state officials were dismissive of subjective reports about poor water quality, and pointed to inaccurate water sampling data now known to have been improperly collected.⁵⁷ The racial and socioeconomic composition of Flint was certainly a major contributing factor in political and regulatory indifference to the developing crisis.⁵⁸ To these factors may be added the unusually strong emergency and government reorganization powers available to the governor of Michigan,⁵⁹ as well the existence of outright fraud and malfeasance severe enough to have resulted in criminal prosecutions.

Economic inequality, segregation, fragmented political authority, and industrial and naturally occurring environmental hazards exist throughout the Great Lakes region. This

combination of factors makes water safety a defining water management problem for the region. Although the text of the GLC did not foreground these concerns, this does not mean, in practice, that regional administrators could not attempt to orient the agreement in this direction. The practical scope and priorities of the GLC are still incompletely defined, and at minimum, the agreement provides an opportunity for senior officials in the region to meet regularly to discuss water issues. However, the pattern of contention around the Waukesha diversion has clearly militated against such an expansive use of the agreement. None of the interested parties foregrounded water safety as a policy concern. Through involvement in the rulemaking process, these parties defined an administrative agenda that prompted the GLC to concern itself with questions of legal interpretation, and confine its mandate to the strict text of the compact itself. This view is undesirable, both because prior experience has shown it to be unsuccessful, and because American water law is itself a major impediment to equitable access to adequate supplies of safe water.

First, experience has shown that a legalistic view of water management agreements renders them less able to address new challenges. Interstate water compacts such as the GLC are ordinarily enacted to address a specific goal. In the Western U.S., this is usually allocation of scarce water resources between state parties; in the Eastern U.S., the goal is often flood control or environmental remediation.⁶⁰ Emergent regional water management problems such as climatic change in the Colorado River Basin, municipal water shortages in the Red River Basin, and fracking in the Delaware River Basin have demonstrated both the need for these agreements to adapt to unforeseen issues, and their limited success in doing so.⁶¹ The greatest hindrance to adaptation is the strict reliance on the written text of agreements—the highly restrictive “contractual” standard of interpretation that finally came to define administrative deliberation on

the Waukesha diversion application.⁶² Such texts are inflexible as tools of administration, and apt to produce protracted conflict and unpredictable outcomes when submitted to judicial review.⁶³ By contrast, forthright regulatory acknowledgment of scientific uncertainty and legal ambiguity has consistently proved to be an effective means of devising workable arrangements for managing current and prospective environmental risks.⁶⁴ Institutional comfort with uncertainty is at least as important as the present state of environmental scientific knowledge, particularly in the case of water management issues.⁶⁵

Further, urging a narrowly legal understanding of water management agreements will, in the specific context of U.S. law, tend to limit access to water. U.S. water law, rooted in common law property rights, concedes very little to need or the public interest. Depending on the state, priority in water use goes to owners of land adjoining or overlying the water source, or those who made use of the water first. Although *need* for water is a persuasive consideration in many other legal systems,⁶⁶ need for water, in itself, has no special status in U.S. law. Overly strong individual property rights in water have emerged as one of the defining water management problems in the American West, where it is exceptionally difficult and costly for communities to acquire water, the rights for which generally belong to operators of irrigated farms. The antiquity of these agricultural water rights also makes it exceedingly difficult to curb water use during droughts; the bulk of the water is consumed by actors not subject to incentives or legal requirements to limit use.⁶⁷ Irrigators, in fact, have very strong incentives to exercise their water rights to the full, irrespective of climatic conditions, as such rights persist only when they are routinely exercised.⁶⁸

Even water sources that are not privately owned are frequently subject to rights systems or regulatory schemes in which actors with no positive right to water may exclude others from

using it,⁶⁹ an example of what has been termed an “anticommons.”⁷⁰ The diversion exception process in the GLC has the potential to evolve into a structure of this kind—all states have unilateral veto power, and two states (Illinois and Michigan) possess this power even though neither states include communities that would have any legal right to apply for a diversion. Water anticommons arguments are most frequently voiced by economists decrying the inefficiency of this system, a view that should of course be approached with suspicion: the Latin American experience of water privatization demonstrates that exposing water allocation to the rule of the market routinely produces extraordinarily unjust outcomes.

However, it may be noted that the sources of inefficiency in the American water allocation system are also major factors in the persistence of serious equity and justice problems: communities with the least access to legal and administrative resources are also the communities most likely to be exposed to local environmental hazards such as water contamination. In processes such as the diversion exception process under the GLC, the burden is on the community applying for water to produce the evidence and resources required to secure approval. In consequence, such remedies are technically available to all communities with a legitimate need, but securing those remedies may be prohibitively costly, time-consuming, or unpredictable for smaller or poorer communities. The irony, then, is that Waukesha, precisely because it is the most populous and wealthy community in the straddling counties, will almost certainly secure access to Great Lakes water despite sustained opposition. By contrast, the protracted regulatory process engendered by resistance to its application may deter less advantaged communities from seeking access to Great Lakes water in the future, even if their case is more needful or politically sympathetic.

Conclusion

This article has examined patterns of public participation in the six-year approval process for the City of Waukesha, WI's application to use Lake Michigan for its municipal water supply; this process included three rounds of state-level administrative review in Wisconsin, review by two regional administrative bodies, and an administrative appeal. Administrative processes of this kind constitute the primary means for the public to participate in environmental decision-making in the United States. Public participation in the Waukesha case was highly partisan. This article has shown that both supporters and opponents of the diversion elided the core fact: Waukesha's local water supply was seriously and permanently contaminated with radium, and was legally obliged to provide safer water. The avoidance of this fact stemmed from the general political commitments of the parties: supporters of the diversion, mostly conservative Republicans, are not generally supportive of environmental protection efforts. They sought a new water supply only after a legal challenge to environmental science had failed, and pressed their argument without significant acknowledgment of the city's water safety problem. Opponents of the diversion, mostly environmentalists or members of communities that have been politically wronged by actors in the Milwaukee suburbs, could not make a forthright acknowledgment of the significant water safety problem while maintaining their opposition to its resolution. Instead, opponents misrecognized the issue as one of conservation, or argued for an alternative approach that would only marginally improve water quality and require waste disposal techniques ordinarily disagreeable to environmentalists.

Over time, this pattern of position-taking transmuted a set of intensely political questions arising from partisan divisions and persistent racial inequality into a highly legalistic set of

arguments. These arguments defined an agenda that shifted the review process away from the substantive expertise of state and regional environmental administrators. This yielded several undesirable consequences. First, the tenor and substance of public participation made it possible for regional administrators to rule on the Waukesha proposal without discussing larger water safety problems in the Great Lakes region. More significantly, the framing of objections promoted a restricted understanding of the scope, purpose, and possible use of the GLC as a cooperative water management agreement.

Water governance in the Great Lakes region has generally addressed itself to water allocation questions that are not especially pressing in a region that enjoys abundant water. At the same time, it has attended less to water safety questions that are very significant in a post-industrial region with high economic inequality and serious, persistent environmental hazards. The new and relatively protean character of the GLC, particularly when put to an initial test at a moment of high regional concern about water safety and environmental justice, could have enabled the administrative review process to define a more expansive, equity-oriented mission for the GLC.

Instead, the GLC has begun to develop in a direction that is all too common for water governance agreements in the United States: narrow contractualism that is unresponsive to emerging environmental problems. This pattern will remain a serious challenge for fashioning effective environmental policy. The United States is a polity divided by intense partisanship, particularly on matters of environmental protection. This partisanship frequently gives rise to politically motivated rejection or ignorance of environmental science. This may be observed not only in political discourse, but also involvement in the practical activity of environmental administration through the rulemaking process. Rulemaking invests decision-making power in

the hands of experts in environmental policy and science, but leaves to the public much of the power to define the agenda and scope of the regulatory process. By ignoring or rejecting the relevant science, politically motivated participants in rulemaking may shift administrative attention away from matters of science or the public interest. Legal or law-like arguments readily serve this goal. Such claims, in this case and others, have the effect of drawing administrators away from their expertise, and may yield bad or unfair outcomes on particular questions of policy, as well as a progressive narrowing and hardening of agreements that could otherwise provide a basis for cooperative, adaptive responses to environmental problems.

Notes

¹ Mona Hanna-Attisha, Jenny LaChance, Richard Casey Sadley, and Allison Champney Schnepf, “Elevated Blood Lead Levels in Children Associated with the Flint Drinking Water Crisis: A Spatial Analysis of Risk and Public Health Response,” *American Journal of Public Health* 106, no. 2 (2016): 283-290.

² The shift from adversarial hearings to rulemaking in agency activity, with its attendant expansion in the power and flexibility of administrators, is the defining feature of the modern administrative state that emerged from the reforms of the Progressive Era and the New Deal, Jerry L. Mashaw, *Creating the Administrative Constitution: The Lost One Hundred Years of American Administrative Law* (New Haven: Yale University Press, 2012).

³ Informal negotiation occurring “in the shadow” of formal, adversarial proceedings is a well-elaborated framework for the legal and social scientific study of plea bargaining, Stephanos Bibas, “Plea Bargaining outside the Shadow of the Trial,” *Harvard Law Review* 117, no. 8 (2004): 2463-2547. Similar dynamics have become common in many civil contexts, particularly when one of the possible parties is a state actor, Margaret H. Lemos, “Aggregate Litigation goes Public: Representative Suits by State Attorneys General,” *Harvard Law Review* 126, no. 2 (2012): 486-549; Paul Nolette, *Federalism on Trial: State Attorneys General and National Policymaking in Contemporary America* (Lawrence: University Press of Kansas, 2015).

⁴ Frederick H. Buttel and William L. Flinn, “Environmental Politics: The Structuring of Partisan and Ideological Cleavages in Mass Environmental Attitudes,” *Sociological Quarterly* 17, no. 4 (1976): 477-490.

⁵ Matthew Levendusky, *The Partisan Sort: How Liberals Became Democrats and Conservatives Became Republicans* (Chicago: University of Chicago Press, 2009).

⁶ Aaron M. McCright, Chenyang Xiao, and Riley E. Dunlap, "Political Polarization on Support for Government Spending on Environmental Protection in the USA, 1974-2012," *Social Science Research* 48 (2014): 251-260.

⁷ Aaron M. McCright, Riley E. Dunlap, and Chenyang Xiao, "Increasing Influence of Party Identification on Perceived Scientific Agreement and Support for Government Action on Climate Change in the United States, 2006-12," *Weather, Climate, and Society* 6, no. 2 (2014): 194-201; Lawrence C. Hamilton and Kei Saito, "A Four-party View of US Environmental Concern," *Environmental Politics* 24, no. 2 (2015): 212-227.

⁸ Malcolm Fairbrother, "Trust and Public Support for Environmental Protection in Diverse National Contexts," *Sociological Science* 3 (2016): a17.

⁹ Stefan Drews and Jeroen C.J.M. van den Bergh, "What Explains Public Support for Climate Policies? A Review of Empirical and Experimental Studies," *Climate Policy* 16, no. 7 (2016): 855-876.

¹⁰ Yet it is notable that residents of the Great Lakes region possess attitudes about the appropriate governmental scale for managing water quality issues that are not strictly related to partisanship; local government officials are nearly four times as likely as members of the public to evince a preference for greater state or provincial involvement, Sarah Mills and Christopher Gore, "Public and Local Government Leader Opinions on Environmental Federalism: Comparing Issues and National Contexts," *State and Local Government Review* 48, no. 3 (2016): 165-174.

¹¹ Jessica Budds, "Contested H2O: Science, Policy and Politics in Water Resources Management in Chile," *Geoforum* 40, no. 3 (2009): 418-430; Jamie Linton and Jessica Budds, "The Hydrosocial Cycle: Defining and Mobilizing a Relational-Dialectical Approach to Water," *Geoforum* 57 (2014): 170-180.

¹² Hilda E. Kurtz, "Scale Frames and Counter-scale Frames: Constructing the Problem of Environmental Justice," *Political Geography* 22, no. 8 (2003): 887-916; Emma S. Norman, Karen Bakker, and Christina Cook, "Water Governance and the Politics of Scale," *Water Alternatives* 5, no. 1 (2012): 52-61.

¹³ Erik Swyngedouw, *Social Power and the Urbanization of Water: Flows of Power* (New York: Oxford University Press, 2004).

¹⁴ David Schorr, *The Colorado Doctrine: Water Rights, Corporations, and Distributive Justice on the American Frontier* (New Haven: Yale University Press, 2014); Mark Kanazawa, *Golden Rules: The Origins of California Water Law in the Gold Rush* (Chicago: University of Chicago Press, 2015).

¹⁵ Daniel McCool, *Native Waters: Contemporary Indian Water Settlements and the Second Treaty Era* (Tucson: University of Arizona Press, 2002); Joseph F. Zimmerman, *Interstate Cooperation: Compacts and Administrative Agreements*. (Albany: SUNY Press, 2012).

¹⁶ Edella Schlager and Tanya Heikkila, "Resolving Water Conflicts: A Comparative Analysis of Interstate Water Compacts," *Policy Studies Journal* 37, no. 3 (2009): 367-392.

¹⁷ Stephen Zavestoski, Stuart Shulman, and David Schlosberg, "Democracy and the Environment on the Internet: Electronic Citizen Participation in Regulatory Rule Making," *Science, Technology & Human Values* 31, no. 3 (2006): 1-26.

¹⁸ Nathan J. Grasse, Brett Curry, and Brianne Heidbreder, "Organized Interests and Administrative Rulemaking: The State of Wisconsin's Lobbyists and Coalitions," *Journal of Public Affairs* 16, no. 3 (2015): 255-269.

¹⁹ Stuart W. Shulman, "The Case against Mass E-mails: Perverse Incentives and Low-

Quality Public Participation in U.S. Federal Rulemaking,” *Policy & Internet* 1, no. 1 (2009): 23-53; Nina A. Mendelson, “Rulemaking, Democracy, and Torrents of Email,” *George Washington Law Review* 79 (2010): 1343-1380.

²⁰ Jill Lindsey Harrison, “Bureaucrats’ Tacit Understandings and Social Movement Policy Implementation: Unpacking the Deviation of Agency Environmental Justice Programs from EJ Movement Priorities,” *Social Problems* 63, no. 4 (2016): 534-553.

²¹ Robert D. Bullard, *Dumping in Dixie: Race, Class, and Environmental Quality* (Boulder: Westview Press, 1990).

²² Paul Mohai and Robin Saha, “Which Came First, People or Pollution? A Review of Theory and Evidence from Longitudinal Environmental Justice Studies,” *Environmental Research Letters* 10, no. 12 (2015): 125011.

²³ Jeremy Pais, Kyle Crowder, and Liam Downey, “Unequal Trajectories: Racial and Class Differences in Residential Exposure to Industrial Hazard,” *Social Forces* 92, no. 3 (2013): 1189-1215; James R. Elliott, “Natural Hazards and Residential Mobility: General Patterns and Racially Unequal Outcomes in the United States,” *Social Forces* 93, no. 4 (2015): 1723-1747; Paul Mohai and Robin Saha, “Which Came First, People or Pollution? Assessing the Disparate Siting and Post-siting Demographic Change Hypotheses of Environmental Injustice,” *Environmental Research Letters* 10, no. 11 (2015): 115008.

²⁴ Isabelle Anguelovski, “From Toxic Sites to Parks as (Green) LULUs? New Challenges of Inequity, Privilege, Gentrification, and Exclusion for Urban Environmental Justice,” *Journal of Planning Literature* 31, no. 1 (2016): 23-36.

²⁵ Troy D. Abel, Jonah White, and Stacy Clauson, “Risky Business: Sustainability and Industrial Land Use across Seattle’s Gentrifying Riskscape,” *Sustainability* 7 (2015): 15718-15753.

²⁶ George M. Hornberger, David J. Hess, and Jonathan Gilligan, “Water Conservation and Hydrological Transitions in Cities in the United States,” *Water Resources Journal* 51, no. 6 (2015): 4635-4649.

²⁷ David J. Hess, Christopher A. Wold, Elise Hunter, John Nay, Scott Worland, Jonathan Gilligan, and George M. Hornberger, “Drought, Risk, and Institutional Politics in the American Southwest,” *Sociological Forum* 31, no. S1 (2016): 807-827.

²⁸ James R. Elliott and Scott Frickel, “The Historical Nature of Cities: A Study of Urbanization and Hazardous Waste Accumulation,” *American Sociological Review* 78, no. 4 (2013): 521-543; James R. Elliott and Scott Frickel, “Urbanization as Socio-Environmental Succession: The Case of Hazardous Industrial Site Accumulation,” *American Journal of Sociology* 120, no. 6 (2015): 1736-1777.

²⁹ Matthias Gross, *Ignorance and Surprise: Science, Society, and Ecological Design* (Cambridge: MIT Press, 2010).

³⁰ Joanne Gaudet, “It Takes Two to Tango: Knowledge Mobilization and Ignorance Mobilization in Science Research and Innovation,” *Prometheus* 31, no. 3 (2013): 169-187.

³¹ Linsey McGoey, “The Logic of Strategic Ignorance,” *British Journal of Sociology* 63, no. 3 (2012): 533-576; Francois Dedieu, Jean-Noel Jouzel, and Giovanni Prete, “Governing by Ignoring,” in Matthias Gross and Linsey McGoey, eds., *Routledge International Handbook of Ignorance Studies* (New York: Routledge, 2015), 297-307; Ann-Christina Lange, “Organizational Ignorance: An Ethnographic Study of High-Frequency Trading,” *Economy & Society* 45, no. 2 (2016): 230-250.

³² Daniel Lee Kleinman and Sainath Suryanarayanan, “Dying Bees and the Social Production of Ignorance,” *Science, Technology & Human Values* 38, no. 4 (2012): 492-517; Ralph Hertwig and Christoph Engel, “Homo Ignorans: Deliberately Choosing Not to Know,” *Perspectives on Psychological Science* 11, no. 3 (2016): 359-372.

³³ Peter J. Jacques, Riley E. Dunlap, and Mark Freeman, “The Organisation of Denial: Conservative Think Tanks and Environmental Scepticism,” *Environmental Politics* 17, no. 3 (2008): 349-385.

³⁴ Dave Dempsey, *Great Lakes for Sale: From Whitecaps to Bottlecaps* (Ann Arbor: University of Michigan Press, 2008), 92.

³⁵ Peter Annin, *The Great Lakes Water Wars* (Washington, D.C.: Island Press, 2016). Before the enactment of the GLC, a billboard in Michigan, captioned “BACK OFF SUCKERS,” depicted four figures sucking water from the Great Lakes through straws: a man in a sombrero labeled “New Mexico,” a man in a Stetson hat labeled “Texas,” a surfer labeled “California,” and a skier labeled “Utah,” Dempsey, *Great Lakes for Sale: From Whitecaps to Bottlecaps*.

³⁶ Murray Clamen, and Daniel Macfarlane, “The International Joint Commission, Water Levels, and Transboundary Governance in the Great Lakes,” *Review of Policy Research* 32, no. 1 (2015): 40-59.

³⁷ William Cronon, *Nature’s Metropolis: Chicago and the Great West* (New York: W.W. Norton, 1992).

³⁸ Annin, *The Great Lakes Water Wars*.

³⁹ Jenny Huang, “Finding Flow: The Need for a Dynamic Approach to Water Allocation,” *New York University Law Review* 81 (2006): 734-765.

⁴⁰ Environmental Protection Agency, “National Primary Drinking Water Regulations; Radionuclides; Final Rule,” *Federal Register* 65, no. 236 (2000): 76708-76743.

⁴¹ This argument smacks of bad faith: studies of the effects of radium exposure are limited precisely because this exposure was avoided once it became a known hazard. The effects of exposure also become apparent slowly, most notably in heightened risk of certain cancers, meaning that studies that do not track exposure over long periods of time will significantly underestimate risk to health.

⁴² Comments and review documents are available at “City of Waukesha Water Diversion Application,” Wisconsin Department of Natural Resources, accessed December 24, 2016, <http://dnr.wi.gov/topic/wateruse/waukeshadiversionapp.html>; “City of Waukesha Water Diversion Application,” Great Lakes-St. Lawrence River Water Resources Regional Body, accessed December 24, 2016, <http://www.waukeshadiversion.org>.

⁴³ Douglas S. Massey and Nancy A. Denton, “Hypersegregation in U.S. Metropolitan Areas: Black and Hispanic Segregation along Five Dimensions,” *Demography* 26, no. 3 (1989): 373-391; Matthew Desmond, *Evicted: Poverty and Profit in the American City* (New York: Random House, 2016).

⁴⁴ Marc V. Levine, “Racial Disparities, Socioeconomic Status, and Racialized Politics in Milwaukee and Wisconsin: An Analysis of Senate Factors Five and Six of the Voting Rights Act,” report submitted in *Frank v. Walker*, Civil Action no. 2:11-cv-01128(LA), 2013.

⁴⁵ Kate Foss-Mollan, *Hard Water: Politics and Water Supply in Milwaukee, 1870-1995* (West Lafayette, IN: Purdue University Press, 2001).

⁴⁶ Historically, it has been rare for state and local governments to refuse money, especially money that is available without attached policy mandates or oversight, Deil S. Wright,

Understanding Intergovernmental Relations (North Scituate, MA: Duxbury Press, 1978).

Refusals have only become common during what might be termed the Tea Party Era, the period of high political polarization and intergovernmental conflict begun in 2009. See Sean Nicholson-Crotty, "Leaving Money on the Table: Learning from Recent Refusals of Federal Grants in the American States," *Publius: The Journal of Federalism* 42, no. 3 (2012): 449-466; Charles Barrilleaux and Carlisle Rainey, "The Politics of Need: Examining Governors' Decisions to Oppose the 'Obamacare' Medicaid Expansion," *State Politics & Policy Quarterly* 14, no. 4 (2014): 437-460.

⁴⁷ Two sets of commenters approached the issue of return flow in a way that strongly suggests the partisan motivations underlying the environmental arguments. Residents of the Root River watershed opposed the diversion out of concern that Waukesha's treated water would be environmentally harmful. Waukesha's treated water is currently discharged into the Fox River, a tributary of the Mississippi. Fox River residents wrote in opposition to the diversion because they did not wish to lose this discharge, which was perceived as substantially *improving* the health of the Fox River.

⁴⁸ Without belaboring the point, it should be noted that environmentalists in the U.S. are ordinarily not fond of injection wells. The use of injection wells in fracking has been linked to environmental contamination, as well as earthquakes.

⁴⁹ Regional Body, "City of Waukesha Diversion Application."

⁵⁰ "Reasonable" is a persistent source of trouble in U.S. law. Many different domains of law formally rely on tests of reasonableness or the behavior of a notional "reasonable person," though these standards are always contested and are often successfully employed to justify actions that are, to a social scientific sensibility, wholly unreasonable, Alan D. Miller and Ronen Perry, "The Reasonable Person," *New York University Law Review* 87, no. 2 (2012): 323-392.

⁵¹ Scott Frickel, R. Campanella, and M.B. Vincent, "Mapping Knowledge Investments in the Aftermath of Hurricane Katrina: A New Approach for Assessing Regulatory Agency Responses to Environmental Disaster," *Environmental Science & Policy* 12, no. 2 (2009): 119-133; Scott Frickel, "Absences: Methodological Notes about Nothing, in Particular," *Social Epistemology* 28, no. 1 (2014): 86-95.

⁵² Katherine J. Cramer, *The Politics of Resentment: Rural Consciousness in Wisconsin and the Rise of Scott Walker* (Chicago: University of Chicago Press, 2016).

⁵³ Harrison, "Bureaucrats' Tacit Understandings and Social Movement Policy Implementation," 4.

⁵⁴ Elizabeth Kneebone and Alan Berube, *Confronting Suburban Poverty in America* (Washington, D.C.: Brookings Institution, 2013); Els De Graauw, Shannon Gleeson, and Irene Bloemraad, "Funding Immigrant Organizations: Suburban Free Riding and Local Civil Presence," *American Journal of Sociology* 119, no. 1 (2013): 75-130; Barrett A. Lee, Glenn Firebaugh, John Iceland, et al., "Spatial Assimilation in U.S. Cities and Communities? Emerging Patterns of Hispanic Segregation from Blacks and Whites," *The ANNALS of the American Academy of Political and Social Science* 660, no. 1 (2015): 36-56.

⁵⁵ Dulce B.B. Rodrigues, Hoshin V. Gupta, Aleix Serrat-Capdevila, et al., "Contrasting American and Brazilian Systems for Water Allocation and Transfers," *Journal of Water Resource Planning and Management* 141, no. 7 (2014): 0401087.

⁵⁶ Lindsey J. Butler, Madeleine K. Scammell, and Eugene B. Benson, “The Flint, Michigan, Water Crisis: A Case Study in Regulatory Failure and Environmental Injustice,” *Environmental Justice* 9, no. 4 (2016): 93-97.

⁵⁷ Both the monitoring and enforcement dimensions of federal water quality protections are known to be susceptible to the forms of incorrect sampling and regulatory breakdown that occurred in Flint, Adrienne Katner, Kelsey J. Pieper, Yanna Lambrinidou, Komal Brown, Chih-Yang Hu, Howard D. Mielke, and Marc A. Edwards, “Weaknesses in Federal Drinking Water Regulations and Public Health Policies that Impede Local Lead Poisoning Prevention and Environmental Justice,” *Environmental Justice* 9, no. 4 (2016): 109-117

⁵⁸ These factors also had significant within-community effects on degree of exposure to lead: heavy metal contaminants are commonly concentrated in portions of municipal water supply systems in ways that strongly correlate with residential segregation by race and class. This pattern has been observed in Flint, Richard Casey Sadler, Jenny LaChance, and Mona Hanna-Atisha, “Social and Built Environmental Correlates of Predicted Blood Lead Levels in the Flint Water Crisis,” *American Journal of Public Health* (2017) doi:10.2105/AJPH.2017.303692.

⁵⁹ Gerald Benjamin and Zachary Keck, “Executive Orders and Gubernatorial Authority to Reorganize State Government,” *Albany Law Review* 74, no. 4 (2011): 1611-1634.

⁶⁰ Jerome C. Muys, George Sherk, and Marilyn O’Leary, *Model Interstate Water Compact* (Albuquerque: University of New Mexico Press, 2009).

⁶¹ Joseph W. Dellapenna, “Transboundary Water Sharing and the Need for Public Management,” *Journal of Water Resource Planning and Management* 133, no. 5 (2007): 397-404; Robin Kundis Craig, “Adapting Water Law to Public Necessity: Reframing Climate Change Adaptation as Emergency Response and Preparedness,” *Vermont Journal of Environmental Law* 11, no. 4 (2010): 709-756; Craig Anthony Arnold, “Adaptive Water Law,” *Kansas Law Review* 62 (2014): 1043-1090.

⁶² Frank A. Ward, “Forging Sustainable Transboundary Water-sharing Agreements: Barriers and Opportunities,” *Water Policy* 15, no. 3 (2013): 386-417.

⁶³ Rhett B. Larson, “Interstitial Federalism,” *UCLA Law Review* 62 (2015): 908-968; J.B. Ruhl and James Salzman, “Climate Change Meets the Law of the Horse,” *Duke Law Journal* 62, no. 5 (2013): 975-1027.

⁶⁴ Matthias Gross and Alena Bleicher, “‘It’s Always Dark in Front of the Pickaxe’: Organizing Ignorance in the Long-term Remediation of Contaminated Land,” *Time & Society* 22, no. 3 (2012): 316-334.

⁶⁵ Christian Kuklicke and David Demeritt, “Adaptive and Risk-based Approaches to Climate Change and the Management of Uncertainty and Institutional Risk: The Case of Future Flooding in England,” *Global Environmental Change* 37 (2016): 56-68; Mark Zeitoun, Bruce Lankford, Tobias Kruger, et al., “Reductionist and Integrative Research Approaches to Complex Water Security Policy Challenges,” *Global Environmental Change* 39 (2016): 143-154; John Fleck, *Water is For Fighting Over: And Other Myths about Water in the West* (Washington, D.C.: Island Press, 2016).

⁶⁶ Michael C. Meyer, *Water in the Hispanic Southwest: A Social and Legal History, 1550-1850* (Tucson: University of Arizona Press, 1984); Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (New York: Cambridge University Press, 1990).

⁶⁷ Holly Doremus, “Climate Change and the Evolution of Property Rights,” *UC Irvine Law Review* 1, no. 4 (2011): 1091-1124.

⁶⁸ The property rights regime in Western water also produces highly undesirable economic incentives. The economic incentives to use irrigation rights to the full are stronger in temporary droughts, which often increase crop prices. Permanent shortages, such as those arising from climatic change or exhaustion of non-renewable water deposits, may encourage rapid depletion of water resources—indeed, Ostrom’s analysis of water courts in Spain treats such circumstances as a paradigmatic example of a resource pool susceptible to a tragedy of the commons.

⁶⁹ Stephen N. Bretsen and Peter J. Hill, “Water Markets as a Tragedy of the Anticommons,” *William and Mary Environmental Law and Policy Review* 33, no. 3 (2009): 723-783; Lea-Rachel Kosnik, “River Basin Water Management in the U.S.: A Regulatory Anticommons,” *Environmental & Energy Law & Policy Journal* 5, no. 2 (2010): 365-395.

⁷⁰ Michael A. Heller, “The Tragedy of the Anticommons: Property in Transition from Marx to Markets,” *Harvard Law Review* 111, no. 3 (1998): 621-688.