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The politics of fresh water: setting the stage

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1 The politics of fresh water

Setting the stage

Tamar Mayer and Catherine M. Ashcraft

Water...

is the cause at times of life or death, or increase or privation,
nourishes at times and at others does the contrary;
at times has a tang, at times is without savor,
sometimes submerging the valleys with great floods.
In time and with water, everything changes.

(Attributed to Leonardo da Vinci)

Leonardo da Vinci describes fresh water as a paradox: a natural resource and sustainer for which we have no substitute, but also a resource that at once unites and divides communities. Water is not always available where and when it is needed; nevertheless, it invariably contributes to social and national identity and defines humans' interactions with their environment. At times, too much water wreaks havoc on our efforts to control it; at others, water scarcity drives migration, adaptation, and conflict. In fact, fresh water is defined by the discourse of crisis: the crisis of fragmented freshwater systems, the crisis of freshwater supply, and the crisis of pollution (Speth, 2008).

As this book nears publication, the Flint, Michigan, water crisis is still unfolding. Economically disadvantaged and predominantly African American, the city of Flint was denied access to safe water for an 18-month period. In 2014 Flint switched its municipal water supply source from Lake Huron water (treated by the Detroit Water and Sewerage Department) to Flint River water (treated by the Flint Water Treatment Plant). Before switching back to Lake Huron water, Flint's residents and thousands of children, who are particularly vulnerable to lead poisoning, were exposed to toxic lead levels with permanent consequences for their brain development and other health issues. Flint's crisis illustrates three interrelated themes that are central to any discussion of the politics of fresh water and to this book: access, conflict, and identity.

According to the recent report by the Flint Water Advisory Task Force, Flint's crisis demonstrates failures of technology, government decision-making, and conflict management. Flint's poorly maintained Water Treatment Plant was incapable of producing safe drinking water. Flint Public Works personnel followed neither the corrosion-control requirements intended to limit release

of lead from aging pipes, nor did they adhere to lead-monitoring rules. By replacing Flint's locally elected representatives with an emergency manager who had sole authority over municipal decisions, including the decision to switch water sources, the state of Michigan denied Flint's citizens access to meaningful participation in water decision-making processes. Other government officials failed to enforce drinking-water regulations, ignored citizen's concerns about the water's color, taste, and odor, neglected to question increasing evidence of lead exposure, and delayed taking action. Conflict between Flint officials and the Detroit Water and Sewerage Department over water-supply contract terms also contributed to the crisis. In addition to these and other failures mentioned in the Task Force's report, Flint's water crisis teaches an important lesson about community mobilization to challenge environmental injustice (Flint Water Advisory Task Force, 2016). Here, the residents of Flint, with support from others from all over the United States, including President Obama, have successfully challenged the government's inadequate response to the problem and its indifference to their concerns.

Two important insights cut across the chapters in this volume. First, the social, physical, and ecological components of water systems are interconnected, forming a hydro-social system. For example, the decision not to treat Flint's water with anticorrosives affected physical systems, including the water treatment and supply infrastructure, as well as ecological systems and human health. The hydro-social concept emerged from the literature on coupled social-ecological systems (e.g., Berkes, Colding, & Folke, 2003), from literature on space, time, place, society/nature, and justice (e.g., Harvey, 1996), from science and technology studies (e.g., Barnes & Alatout, 2012), and from literature on conflict resolution (e.g., Islam & Susskind, 2012). The contributors in this book explicitly critique normative understanding of hydro-social systems and present new insights into the ways access, conflict, and identity are constructed in these systems.

Second, instead of being inevitable, freshwater crisis is a socially constructed experience, a lived phenomenon (De Rycker & Mohd Don, 2013). Speaking about Flint's water crisis, President Obama said, "This was a manmade disaster. ... Sometimes it takes a crisis for everybody to focus their attention. ... And when we see it, and we understand it, and we feel it, then maybe we start making a connection with each other" (Obama, 2016). Water scarcity is not simply the result of what nature has to offer but always involves power relations and political decisions. The water crisis is not only about who is granted access to safe, clean water (when, where, and why), but also about the extent to which the shrinking of available fresh water influences people's everyday lives at the national and subnational scales. The water crisis also reflects the impact of modernization and neoliberal policies on identity and sense of community. After all, water is the source of livelihood and survival for all people, in every location, at every geographical scale, and the meaning of access to water is inextricably connected to cultural, societal, and political identities. This book's contributors illuminate the dialectic between water and society, reinforcing issues of access, conflict, and identity.

The chapters in this volume provide analyses of the politics of fresh water from multiple perspectives and provide a common stage on which humanists, policy specialists, and social scientists can discuss the complexity of water issues. Together, the contributors offer a deeper and more integrated understanding of the politics of fresh water than would be possible through any single disciplinary approach, scale, time period, or region. They go beyond examining the current state of the freshwater crisis as they analyze the drivers of change in water systems and propose opportunities for the future. Finally, in these chapters the contributors confront problems with the artificial distinction between “nature” and “culture.” They suggest that the separation between humans and their natural environment has eroded the identities of those for whom fresh water is a way of life and, at the same time, damaged both nature and culture. Ultimately, this volume challenges us to connect fresh water’s diverse meanings for nature, culture, place, economy, and identity and to reconceptualize human experiences *as* nature.

Politics, water, and access

Despite global targets and significant advances in global access to affordable, safe, and clean water, these improvements are textured and uneven (Gerlak & Wilder, 2012). According to 2013 United Nations (UN) figures, more than 750 million people do not have access to clean water, especially those living in rural areas, and almost 2.5 billion do not have access to adequate sanitation (UNESCO, 2013a). Six to eight million people die annually from the consequences of water-related disasters and diseases. Most of these deaths occur in the Global South. Global water use is growing even faster than populations, at the same time as climate change impacts are making freshwater supply even less predictable and reliable (IPCC, 2013). By 2025 two-thirds of the world’s population could be living under water-stressed conditions (UNESCO, 2013b).

There are many causes of the freshwater crisis that could be avoided by better planning, by paying attention to the hydro-social system, and by rethinking the connection between “nature” and “culture.” The reasons for the crisis include lack of infrastructure to separate wastewater and drinking water; inadequate technology for filtration and disinfection of drinking water; degradation of freshwater systems through human activities, such as pollution and withdrawals; climate change; social practices that determine access based on social hierarchies; privatization systems that exclude the poor; and lack of institutions that ensure equitable access (Brookes & Carey, 2015; Circle of Blue, 2010; Cox, 2015). The chapters assembled here analyze two kind of processes related to access: those by which these physical, social, and ecological factors interact to determine access to water resources and benefits from its use, as well as access to participate in water decision-making; and those by which textured and uneven access patterns, in turn, shape the hydro-social system, including pathways for challenging injustice.

The first part of this volume focuses on institutions that determine who has access to the benefits of water use and who can participate in decisions

regarding water. Strengthening institutions is generally recognized as important for improving water access (e.g., Ostrom, 1990). On one hand, institutions have relatively stable rules and practices, which are constructed to prescribe behavior and create expectations for behavior (Keohane, Haas, & Levy, 1993). On the other, they respond to a shifting reality of internal dynamics and changes in their social, political, and economic environments (Young, 1983). Together the cases in these chapters show how access rules are socially embedded, how they create conflict by privileging access for some over others, and how communities can mobilize to enact institutional change.

Using cases from the Roman Empire, Bannon (Chapter 2) analyzes rules defining who has access to water. Private property rights limited access to water in order to secure the supply for the owners of the rights, but exercise of these rights was tied to community norms of civility. In Venafrum, Italy, fountains provided public access to water, but individuals could also buy personal water rights. Illegal diversions were deterred through the placement of boundary stones and through rules ensuring water's arrival in town. In contrast, in the Ebro River irrigation community in what is now Spain, public water was allocated in proportion to land ownership. Irrigators had a right to divert water in proportion to the amount of land they each irrigated and according to a set schedule. In Chapter 11, Mustafa describes a similar rotational schedule for distributing water in karez systems in Balochistan (Pakistan) and Nakhchivan (Azerbaijan). In Nakhchivan, where the karez is being resurrected, water access is proportional either to the amount of land owned or to the owner's contribution to karez rehabilitation. In another case, from New Zealand, McGinnis discusses *kaitiakitanga*, the Māori cultural system of values and beliefs, which determines spatial and temporal access to natural resources and stewardship obligations. New Zealand's decision to reorganize its political boundaries according to basin boundaries incorporated *kaitiakitanga*'s ecosystem perspective.

The river basin approach, as applied for example in New Zealand, is often exalted as a natural and objective unit for better water management, which brings together interdependent and diverse interests within the basin to pursue shared objectives (Powell, 1890; Teclaff, 1967). However, as several chapters in this book demonstrate, the decision to adopt a basin scale system of governance is a political decision between contending values and objectives with unequal consequences for water access (Cook, Cohen, & Norman, 2015; McGinnis, 1999). Ashcraft (Chapter 5), for example, analyzes efforts to organize cooperation at the scale of the entire water system in the Danube and Nile Rivers, which included sharp disagreements over access. In the Danube, countries disagreed over the geographic scope of navigation rules permitting commercial access to ports and ultimately differentiated access according to geographic area (main river or delta area) and whether or not the ship was from a country with territory in the basin. Vogel (Chapter 4), by focusing on the complex histories of the Tennessee, Columbia, and Connecticut River basins, shows how organizing cooperation at the basin scale can spread access to a narrow set of benefits, especially hydropower, to some users at the expense of those who

depend on access to other river resources, such as fish, and whose ability to participate in decision-making is limited. In contrast, Ryan and Napoli (Chapter 3) describe how a judicial decision, which created a new basin-wide agency for Argentina's Matanza-Riachuelo basin to clean up and control pollution, opened up opportunities for human rights and environmental nongovernmental organizations (NGOs) to participate in making decisions and shape institutions that govern water access.

Investment in built infrastructure is another common approach to improving access to water. However, technocratic approaches often focus on physical elements of the system and exclude other elements, with negative consequences for access to water's diverse social, cultural, and ecological benefits (Gerlak, 2016; McCartney & Dalton, 2015). Magilligan, Sneddon, and Fox (Chapter 6) compare the hydropower and economic benefits from constructing large dams with the large costs for other kinds of system benefits, such as biodiversity. In Graybill's analysis of resource flows in Sakhalin Island (Chapter 7), the Russian federal government, transnational corporations, and international financial institutions engaged in industrial-scale resource development only minimally consider the socioeconomic impacts on local and indigenous subsistence interests who care about freshwater habitat, salmon health, and drinking water. Similarly, in Sri Lanka and Bali (Chapter 9) and Balochistan (Chapter 11), the technocratic approach to irrigation projects physically reduced access to water use for play, bathing, and washing laundry. McMillin (Chapter 15) describes how flood control infrastructure, diversions, and concrete separate the Los Angeles River and limit access to its water system for recreation and habitat for fish and birds. Groenfeldt (Chapter 9), discussing the case of the Cochita Dam in the US state of New Mexico, contrasts actual, negative ecological impacts against the anticipated income, irrigation, and tourism benefits that never materialized. Even when economic benefits are realized from large infrastructure projects, as described in several chapters (9, 10 and 12), these benefits are often not equitably distributed. For example, in Turkey the areas closest to the Atatürk Dam are the least likely to benefit from improved water supply.

Economic approaches also seek to improve access to water resources and benefits by reorganizing rights and price signals to more efficiently allocate water and satisfy competing demands (Gibbons, 2013). However, Woolson (Chapter 14) and Lopez (Chapter 13) explain how commodification exacerbates water scarcity for those who already have marginal access to water, especially indigenous people (Piper, 2014). In Rapa Nui (Easter Island, a Chilean territory), commercialization of the aquifer by a private operator and prioritization of water consumption by tourists exclude indigenous peoples from land and water use (Chapter 14). Similarly, Lopez (Chapter 13) describes the processes in the San Quintín Valley in Mexico, whereby water access is prioritized for "higher-value" commercial strawberry production over other "lower-value" human and nonhuman benefits. Agricultural firms dominate participation in committees governing the aquifers, and farm workers are left with limited access to water. In contrast to Rapa Nui, inequitable water access in the San Quintín Valley has mobilized a new indigenous

political movement to challenge unjust water access and labor conditions. As illustrated by this and other cases in this volume, inequitable access to water is closely connected to conflict, displacement, and loss.

Politics, water, and conflict

Across all cases in this volume, conflict and cooperation are intertwined in water users' clashing worldviews and interests and the institutions, infrastructure, and economic approaches that determine access to water. The cases in this volume analyze both water's destructive potential to exacerbate conflict and its productive potential to foster cooperation (Priscoli & Wolf, 2009).

Because the values people hold are closely linked to their identities, conflicts over values are often particularly intractable and exacerbate divisions between particular groups of users (Putnam & Wondolleck, 2003). Several chapters in this volume analyze clashes between peoples' worldviews in different parts of the world. McGinnis (Chapter 8) compares commercialization of natural resources in New Zealand through large-scale dairy and hydropower generation with the resulting pollution and decline of the longfin eel, a totem species for the *Māori*. The eel's decline is an indicator of the conflict between the way different users value water systems as either watersheds or pollution-transporting "wastesheds." In the case of the Yavapai tribe's rejection of the Orme Dam in the US state of Arizona (Chapter 9), Groenfeldt highlights the clash between some water users' rational, economic interpretation of nature and others' priceless cultural values. Similarly, the conflict over lining earthen irrigation ditches in the southwestern United States (Mustafa, Chapter 11) contrasts state authorities' view of water seepage as inefficient waste with the acequia communities' view of seepage as an important process contributing to the health of a complex agro-social system.

Conflict resolution scholars and practitioners advise against trying to resolve values-based conflicts directly, and recommend focusing instead on practical strategies for managing parties' specific interests (e.g., Forester, 1999). Several contributors in this volume recommend increasing access for diverse interest groups to participate in water decisions (Chapters 9, 11, and 14), for example by creating new spaces that bring diverse interests together to negotiate water policy. In Ebro, Spain, part of the Roman Empire (Chapter 2), a new irrigation community was created to manage conflict between upstream and downstream irrigators living in different political communities. Similarly, Ryan and Napoli (Chapter 3) analyze the effects of creating a new inter-jurisdictional basin forum for negotiating policy disputes in the Matanza-Riachuelo basin in Argentina. Ashcraft (Chapter 5) identifies the creation of *multiple* basin forums in the Danube as a conflict management strategy through which different environmental interests pursued their own objectives.

However, Bannon, Ashcraft, and Vogel conclude that creating basin spaces and rules for their administration may also exacerbate conflict. In the case of the Ebro River irrigation community, water was allocated proportionally according to how much land a user irrigated, which privileged the wealthy. A powerful elite

enforced water rules in ancient Venafrum, not the water users themselves, which undermined community cohesion and strengthened power hierarchies. In the Tennessee and Columbia Rivers (Chapter 4), basin authorities have provided only a narrow range of benefits to specific interest groups at the expense of other basin interests. Until recently, the creation of separate spaces for negotiation of inland navigation and environmental interests in the Danube River (Chapter 5) made it possible for each group to pursue competing objectives, leading to new conflict.

As these cases demonstrate, creating a forum to unite diverse interests from across the water system does not necessarily foster cooperation among diverse interests or empower dissenting interests to participate meaningfully in water decisions. Several other chapters provide examples of institutional mechanisms that have been effective at doing so. A decision by Argentina's Supreme Court (Chapter 3), for example, empowered environmental and human rights NGOs to participate in developing water quality standards. In describing disputes over large dams between economic, environmental, and human rights interests, Magilligan et al. (Chapter 6) identify environmental laws in the United States that mandate public participation as important mechanisms for including interests opposed to large dams. As both Bannon and Ashcraft discuss in their respective chapters, decision-making rules are another way to manage conflict by limiting the power of a majority to act contrary to dissenting interests.

In other cases, delegating conflict resolution to specific individuals was effective for managing conflict. In the Ebro irrigation community (Chapter 2) executive officials were elected from among the irrigators to ensure water use rules were followed and to address violations. Importantly, the irrigators could hold these officials accountable in court if they did not properly execute their authority. In the karez and acequia cases (Chapter 11) a designated community leader also served an important function in managing conflicts.

Recognizing and integrating differences among water users' interests and priorities is another strategy to effectively manage conflicts (Mnookin, Peppet, & Tulumello, 2000; Susskind, 2014). For example, in the Ebro River (Chapter 2) unequal rights to water were balanced by unequal maintenance obligations. More rights entailed more maintenance responsibility. In the Danube water protection negotiations (Chapter 5) countries integrated their different preferences and priorities for the legal nature of the agreement and the scope of issues on which they would cooperate. Ashcraft also identifies the absence of strategies to consider tradeoffs as a cause of ineffective conflict management in the Nile. Magilligan et al. (Chapter 6) identify the same problem in some large dam investors' focus only on greenhouse gas emissions reductions and neglect of other ecological and social costs.

As these cases demonstrate, when access patterns exacerbate inequities within a community of users, conflict often escalates and divides people and countries. However, water can also bring a community together, for example when people adopt strategies that manage conflict effectively or unite in solidarity to oppose injustice. The next section introduces the dynamics by which politics, water, identity, and community interact.

Politics, water, and identity

Most chapters in this volume underscore the inseparability of water and identity. Water is not only an economic resource to be bought and sold or a necessary element for sustenance of humans, plants, and animals, but it is also a crucial source of identity and community. Whether abundant or scarce, water is the central agent that both shapes the social and physical organization of many communities around the world and reflects the identities, worldviews, and even religious perceptions of their people (Østigård, 2009). This has been the case for nomads, herders, agriculturalists, and pastoralists whose days have been consumed by the search for water and grass. It has also been the case in water-based communities for whom fishing is a way of life, and for those communities in which water is part of the broader cultural landscape (Martin & Trigger, 2015) or the focus of spirituality, mythology, and cosmology. Indeed, many cultures draw their power from water (Boelens, 2014) not simply as a tangible resource or necessary physical substance, but rather as a process from which things occur (Linton, 2010). The focus on water's varying meanings, its tangible and non-tangible qualities, often intensifies as water becomes less available due to commodification and the politics associated with it.

As many chapters in this volume suggest, water participates in the construction of *place* in all corners of the globe and reinforces attachment to both place and community. Water, whether on Sakhalin Island (Chapter 7), in New Zealand (Chapter 8), New Mexico (Chapter 9), Gujarat (Chapter 12), or Rapa Nui (Chapter 14), as Graybill, McGinnis, Groenfeldt, Iyer, and Woolson respectively show, anchors indigenous identities, mythologies, and creation stories. For the *Māori*, Hopi, or the Rapanui, water is the source of spiritual life and defines *place*. At times, the river is the center for spiritual life, where sacred ashrams now stand (Chapter 12), and at others, it is believed to bring together sky and earth to produce a complete whole (Chapter 14). Because place is always the sum of people's experiences and is imbued with values as well as ideology and history, water defines and gives meaning to those who derive their identity from place. Indeed, when water is perceived as sacred, place becomes sacred as well.

But the attachment to place and the identity associated with water-based communities do not have to come from the spiritual powers of water. They can come also from the ecological habitat to which indigenous and subsistence communities are integral. When they depend on the natural environment for survival, as is the case for hunting and fishing communities on Sakhalin (Chapter 7) and the fishing and pastoralist *Māori* communities in New Zealand (Chapter 8), water is the provider and as such shapes culture, identity, and attachment to place. Without water there will be no salmon or longfin eel (*tuna*), nor will there be pastures for sheep and other cattle to graze—all of which are inseparable from identities and cultures that have developed in Russia's Far East and New Zealand, for example. These places are associated in the minds of the locals and outsiders with these gifts of water.

Water can create community and help construct identity in other ways as well. Water can bring people together as they use fresh water for recreation and agriculture (Chapters 11, 12, and 13). In Balochistan and Nakhchivan (Chapter 11) and also in San Quintín Valley in the Mexican state of Baja California (Chapter 13), a sense of community was derived from the availability of water and different activities associated with it. In the Asian examples the karez irrigation system provided food security, social capital, and cultural grounding. Because the karez also served as a focal point of community gathering and interaction, which was particularly important for women and children, these irrigation systems, Mustafa argues, became a place of social transactions and sites for community building. In the San Quintín Valley, the community's attachment to place developed before water-intensive, market-oriented agriculture took hold in the area. Then, members of the community bathed and played in the spring water that flowed through the valley, interacting with one another and reinforcing their community identity. Not only did these springs quench the thirst of animals and humans but they were also sites for community enjoyment. Rules that allocate responsibility for maintaining community water systems and enforcing water rules also bring people together (Chapters 2 and 11). In antiquity, Bannon writes in Chapter 2, the autonomous Ebro River irrigation community was involved in maintaining the aqueduct system and self-policing water use. As described earlier, creating space for managing a whole water system, such as river basin organization, can also bring together a new community of diverse users who share it.

In other cases water unites a community to oppose water diversion, privatization, damming, and pollution. In New Zealand (Chapter 8) activists are coming together to challenge the dairy industry and restore the eel. In the San Quintín Valley (Chapter 13) indigenous migrant farm workers have successfully used limited access to water to mobilize and demand better labor conditions from the state. In some cases (Chapter 6 and 7), the affected community is joined by a coalition of activists from community organizations and from regional and international NGOs. The anti-dam movement has become a global social movement that connects many local and national communities to form a larger, global community, which can act in support of the local community. In other words, opposition to neoliberal projects that focus on diversion and efficient management of water may unite and create communities at different geographical scales.

Although opposition sometimes brings communities together, many of the chapters in this volume explore the ways by which the massive build-up of large dams in the post-World War II period creates new conflicts and escalates existing conflicts within communities. Using examples from the American Southwest and India, Groenfeldt argues that the introduction of new built technologies is not simply an attack on culture but a real war. When traditional views of water are at odds with the dominant society's beliefs, with very few exceptions, the dominant society almost always prevails. In southeast Turkey, as Harris writes in Chapter 10, the multi-dam project on the Tigris and Euphrates Rivers exacerbate the long simmering Kurdish conflict. The dam's construction has required

evacuation from rural areas of the large Kurdish ethnonational minority, which had already been poorly treated in Turkey for decades, and irrigation projects prioritize water access for Arab over Kurdish farmers. The evacuations and ensuing conflicts made the dam and water development project the central node of the Turkish–Kurdish conflict. Similar to Gujarat, India, the unequal distribution of water cannot be separated from gender, religion, and other social differences (Chapter 12). Social hierarchy determines access to and management of water and also determines access to markets, even at the household level, leaving women, ethnic minorities, and the poor more vulnerable to the negative impacts of development. This is the case also in the San Quintín Valley, where the interests of ethnic minorities are moot when those in power exert their will.

Changes in economies and neoliberal commercialization of water systems is also at odds with traditional worldviews and water management practices, leading to much conflict at different geographical scales (Alatout, 2008; Boelens, Getches, & Gil, 2010; Homer-Dixon, 2014; Zwarteveen & Boelens, 2014). The indigenous population in Russia’s Far East, for example, whose habitat has been heavily affected by on-and-offshore hydrocarbon explorations (Chapter 7), has struggled to keep alive its traditional way of life, which evolved around salmon. As hydrocarbon explorations will surely continue and intensify, the integrity of both the ecological habitat and its indigenous communities will further erode, leading to displacement and loss. Local and indigenous communities also engage in activities that hurt socio-hydro systems, as seen in Sakhalin. Similarly, even though the cultural heritage of New Zealand’s *Māori* (Chapter 8) embraces the connection between people and the ecosystem within which they live, some *Māori* are now involved in commercial enterprises that commodify nature and thus threaten the very rivers on which *Māori* rely for their culture. The conflicts between tradition and modernity may not be reconcilable unless we develop new way of thinking about rivers and their connected systems.

The concluding chapter in this volume challenges us to rethink what rivers are, how we write about them, and what nature really is. McMillin (Chapter 15) uses the example of the Los Angeles River to argue that all rivers, and as this book shows, all water systems, have an identity, even when their course and character change, even when built infrastructure separates them from the ecological and social systems in which they are involved and these rivers appear to have vanished. All rivers and all water systems, even those that have been manipulated as a result of economic development, have histories, lived experiences, and therefore meanings. Even when all these bodies of fresh water are absent they are actually present. As the Los Angeles River illustrates, there must be other, more helpful ways to think about water systems. If we want to improve them, McMillin suggests we need to better connect water’s diverse meanings for nature, society, economy, place, and identity. By focusing on the confluence of these meanings we can revitalize and restore, not simply the rivers, but our thinking about what nature is and “restore thinking to nature (and ‘nature’ to thinking)” (page nnn, in this volume). The false separation between water’s meanings is at the root of the *Politics of Fresh Water*.

Works cited

- Alatout, S. (2008). "States" of scarcity: water, space, and identity politics in Israel, 1948–59. *Environment and Planning D: Society and Space*, 26(6), 959–982.
- Barnes, J., & Alatout, S. (2012). Water worlds: Introduction to the special issue of *Social Studies of Science*. *Social Studies of Science*, 42(4), 483–488.
- Berkes, F., Colding, J., & Folke, C. (2003). *Navigating social–ecological systems*. Cambridge, UK: Cambridge University Press.
- Boelens, R. (2014). Cultural politics and the hydrosocial cycle: Water, power and identity in the Andean highlands. *Geoforum*, 57, 234–247.
- Boelens, R., Getches, D. H., & Gil, J. A. G. (2010). *Out of the mainstream: Water rights, politics and identity*. London: Earthscan.
- Brookes, J. D., & Carey, C. C. (2015). Ensure availability and sustainable management of water and sanitation for all. *UN Chronicle*, 51(4), 15–16.
- Circle of Blue. (2010). Water news: Experts name the Top 19 solutions to the global freshwater crisis. Retrieved from <http://www.circleofblue.org/2010/world/experts-name-the-top-19-solutions-to-the-global-freshwater-crisis/>
- Cook, C., Cohen, A., & Norman, E. S. (2015). Conclusion: Negotiating water governance. In E. S. Norman, C. Cook, & A. Cohen (Eds.), *Negotiating water governance: Why the politics of scale matter* (pp. 299–307). Abingdon, UK: Routledge.
- Cox, M. (2015). Chapter 10: Comparing water access regimes under conditions of scarcity: The tale of two communities in the United States. In K. Pistor & O. De Schutter (Eds.), *Governing Access to Essential Resources* (pp. 214–234). New York: Columbia University Press.
- De Rycker, A., & Mohd Don, Z. (2013). Discourse in crisis, crisis in discourse. In A. De Rycker & Z. Mohd Don (Eds.), *Discourse and crisis: Critical perspectives* (pp.3–65). Amsterdam: John Benjamins Publishing Company.
- Flint Water Advisory Task Force. (2016). Flint Water Advisory Task Force—Final Report, Lansing, Michigan.
- Forester, J. (1999). Dealing with deep value differences. In L. Susskind, S. McKernan, & J. Thomas-Larmer (Eds.), *The consensus building handbook: A comprehensive guide to reaching agreement* (pp. 463–493). Thousand Oaks, CA: Sage Publications.
- Gerlak, A. K. (2016). Water in international affairs: Heightened attention to equity and rights (review essay). *Global Environmental Politics*, 16(1), 99–105.
- Gerlak, A. K., & Wilder, M. (2012). Exploring the textured landscape of water insecurity and the human right to water. *Environment*, 54(2), 4–17.
- Gibbons, D. C. (2013). *The economic value of water*. Abingdon, UK: Resources for the Future.
- Harvey, D. (1996). *Justice, nature and the geography of difference*. Oxford: Blackwell.
- Homer-Dixon, T. (2014). Resources and conflict. In C. W. Hughes & Y. M. Lai (Eds.), *Security studies: A reader* (pp. 246–252). New York: Routledge.
- IPCC. (2013). Summary for policymakers. In T. F. Stocker, D. Qin, G.-K. Plattner, M. Tignor, S. K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex, & P. M. Midgley (Eds.), *Climate change 2013: The physical science basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge, UK: Cambridge University Press.
- Islam, S., & Susskind, L. (2012). *Water diplomacy: A negotiated approach to managing complex water networks*. Abingdon, UK: RFF Press/Routledge.
- Keohane, R. O., Haas, P. M., & Levy, M. A. (1993). The effectiveness of international environmental institutions. In P. M. Haas, R. O. Keohane, & M. A. Levy (Eds.),

- Institutions for the earth: Sources of effective environmental protection* (pp. 3–24). Cambridge, MA: MIT Press.
- Linton, J. (2010). *What is water?: The history of a modern abstraction*. Vancouver: University of British Columbia Press.
- Martin, R. J., & Trigger, D. (2015). “Nothing never change”: Mapping land, water and Aboriginal identity in the changing environments of northern Australia’s gulf country. *Settler Colonial Studies*, 5(4), 1–17.
- McCartney, M., & Dalton, J. (2015). Built or natural infrastructure—a false dichotomy. Retrieved from https://www.iucn.org/news_homepage/all_news_by_theme/water_news/?19023%2FBuilt-or-natural-infrastructure-a-false-dichotomy
- McGinnis, M. V. (1999). Making the watershed connection. *Policy Studies Journal*, 27(3), 497–501.
- Mnookin, R. H., Peppet, S. R., & Tulumello, A. S. (2000). *Beyond winning: Negotiating to create value in deals and disputes*. Cambridge, MA: Belknap Press.
- Obama, B. (2016). Remarks by the President to the Flint Community—Flint, MI. Flint, MI. Retrieved from <https://www.whitehouse.gov/the-press-office/2016/05/04/remarks-president-flint-community-flint-mi>
- Østigård, T. (2009). *Water, culture and identity: Comparing past and present traditions in the Nile Basin region*. Bergen, Norway: BRIC Press.
- Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge, UK: Cambridge University Press.
- Piper, K. (2014). *The price of thirst: Global water inequality and the coming chaos*. Minneapolis, MN: University of Minnesota Press.
- Powell, J. W. (1890). Institutions for the arid lands. *The Century*, XL, 111–116.
- Priscoli, J. D., & Wolf, A. T. (2009). *Managing and transforming water conflicts*. Cambridge, UK: Cambridge University Press.
- Putnam, L. L., & Wondolleck, J. M. (2003). Intractability: Definitions, dimensions and distinctions. In R. J. Lewicki, B. Gray, & M. Elliott (Eds.), *Making sense of intractable environmental conflicts: Frames and cases* (pp. 35–62). Washington, DC: Island Press.
- Speth, J. G. (2008). *The bridge at the edge of the world: Capitalism, the environment, and crossing from crisis to sustainability*. New Haven, CT: Yale University Press.
- Susskind, L. (2014). *Good for you, great for me: Finding the trading-zone and winning at win-win negotiation*. Philadelphia, PA: Public Affairs.
- Teclaff, L. A. (1967). *The river basin in history and law*. The Hague: Martinus Nijhoff Publishers.
- UNESCO. (2013a). Water cooperation facts and figures. Retrieved from <http://www.unwater.org/water-cooperation-2013/water-cooperation/facts-and-figures/en/>
- UNESCO. (2013b). Water factsheets: Water scarcity. Retrieved from http://www.unwater.org/fileadmin/user_upload/watercooperation2013/doc/Factsheets/water_scarcity.pdf
- Young, O. R. (1983). Regime dynamics: The rise and fall of international regimes. In S. D. Krasner (Ed.), *International organization* (pp. 93–113). Ithaca, NY: Cornell University Press.
- Zwarteveen, M. Z., & Boelens, R. (2014). Defining, researching and struggling for water justice: Some conceptual building blocks for research and action. *Water International*, 39(2), 143–158.