

**The social life of water:
Histories and geographies of environmental injustice in the
Onondaga Lake watershed, New York**

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October 2011



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Introduction

Onondaga Creek flows northward from its headwaters in the hills south of Syracuse, New York, through mixed hardwood forest, rich agricultural bottomlands, and urban neighborhoods, before reaching the lake that shares its name. Along its journey, the creek connects many communities: farmers, Native Americans, suburbanites, and inner city residents. The normally placid character of the creek belies its turbulent recent history of industrialization and urban development that has brought with it profound environmental change and social conflict. Indeed, these processes are integrally and causally linked: environments have been transformed and wealth produced at the expense of certain groups, most especially lower income communities of color. This paper examines two separate but interrelated cases of environmental injustice and social mobilization in the Onondaga Lake watershed.¹ The first case is that of the Onondaga Nation, an indigenous people whose current territory forms part of the Onondaga Lake watershed, and for whom Onondaga Lake and Creek are significant for spiritual, cultural, and historical reasons, and as sources of livelihood and sustenance. The second case involves the Partnership for Onondaga Creek, a grassroots, community-based environmental justice organization formed in 2000 to oppose the construction of a sewage treatment facility in Syracuse's Southside neighborhood, a lower-income, predominantly African American community.

¹ Case studies and other empirical material presented here are based on detailed review of written documents, archives, legal rulings, and press reports, and is rooted in several years of collaborative advocacy and activist work by authors M. Perreault and S. Wraight with the Onondaga Nation and the Partnership for Onondaga Creek. Case studies and historical material were written in coordination and consultation with, and were reviewed and approved by, representatives of the Nation and POC.

Historically, Onondaga Lake and its watershed formed part of the territory of the Onondaga Nation, one of the six nations of the Haudenosaunee (sometimes referred to as the Iroquois Confederacy). Processes of Euro-American encroachment into this territory began in the 17th century, and accelerated greatly following the American war of independence in the late 18th century. The area that is now the city of Syracuse, at the southern end of Onondaga Lake, was intensively settled by Euro-Americans in the early 1800s, who quickly set about transforming the landscape – clearing forests, diverting waterways, and platting townships and farmlands. Processes of physical and biological alteration of the watershed were markedly exacerbated beginning in the late-19th century with the increased industrialization of the Syracuse economy and the resulting rise in lake pollution. In particular, chemical factories on the western edge of the lake released highly toxic and environmentally persistent pollutants, including heavy metals such as mercury and organic compounds such as polychlorinated biphenyls (PCBs). Decomposing sewage released from Syracuse’s inadequate sewage treatment system de-oxygenated the lake ecosystem, and the combined effects of industrial and municipal pollution lead scientists in the 1990s to declare the lake ‘dead,’ earning it a reputation as the most polluted lake in the United States. In 1994 the US Environmental Protection Agency declare the entire lake bottom and surrounding contaminated areas to be Superfund sites, requiring federal and state involvement in environmental remediation.

The reduction and contamination of fish stocks, mammals, birds, riparian vegetation, and other organisms, combined with massive territorial loss as a consequence of Euro-American encroachment, have severely impacted the traditional fishing, hunting, gathering, and other resource use practices of the Onondaga people. The Onondaga Nation continues to struggle against the environmental degradation of the Onondaga Lake watershed, and defends its right to political and cultural self-determination. In 2005, the Onondaga Nation filed a lawsuit in United States federal court to restore recognition of title to its aboriginal territory. Long-term goals of the suit, which is currently working its way through the courts, include securing revenue and land to support a program for environmental restoration and protection.

As the result of a lawsuit based on Clean Water Act violations, a federal judge in 1998 ordered improvements to Onondaga County’s sewage treatment system, forcing the county to begin a nearly \$400 million project to remediate municipal pollution in the lake and its tributaries. As part of this effort, the county government planned to build a series of ‘regional

treatment facilities' (RTFs) along Onondaga Creek and another tributary, to capture and partially treat sewage entering the lake from the city's many combined sewer overflow outlets. One of these was sited near Onondaga Creek in Syracuse's Southside neighborhood. In response to what was widely perceived as the unfair targeting of this neighborhood, which was already burdened with several environmental and social problems, neighbors formed the Partnership for Onondaga Creek (POC) to oppose the construction of the Midland Avenue RTF and to propose alternative ways of cleaning up the creek.

While we believe the cases presented here are worth examining in their own right, our aim is not to add two more examples of environmental injustice to the burgeoning literature. Rather, we argue that the cases of the Onondaga Nation and the Partnership for Onondaga Creek are best viewed not as separate, distinct cases of environmental (in)justice, but rather as two historically- and geographically-specific moments within broader processes of environmental transformation and social exclusion. While exploring the particular details of each case, we foreground the historical socio-environmental continuities between them. In doing so, we hope to advocate for a more integrative approach to environmental justice analysis, that draws on broader temporal and spatial frames.

The paper proceeds as follows. The next section critically reviews certain themes prominent in the environmental justice literature, and makes a case for an integrative perspective that accounts for broader spatial and temporal scales of analysis. This is followed by a discussion of the history and geography of the Onondaga Lake watershed, which in turn is followed by the presentation of our two empirical cases. The paper then considers three themes that run through each case: and struggles over rights to the watershed, social conflict, and social mobilization.

Drawing on and Extending Understandings of Environmental Justice

Conceptualizing Environmental Justice

The literature on environmental justice, within and beyond the field of geography, is by now both deep and wide. Having emerged in the 1980s out of social activism and activist scholarship on the disproportionate exposure to pollution experienced by communities of color, environmental justice has grown as a field of both activism and scholarship (Bullard 2000). If not quite mainstream, environmental justice has at least entered the lexicon and politics of major

international environmental organizations (Greenpeace and Sierra Club are notable examples, as evidenced by these groups' websites), and college courses on the topic are offered throughout North America and Europe. With this growth in acceptance has come an increase in conceptual and theoretical complexity. A single, universally accepted definition and set of metrics with which to evaluate environmental (in)justice is neither likely nor necessarily desirable. Instead, evaluation and analysis must rely on varied and highly contextualized empirical criteria and theoretical frameworks. As Holifield (2001: 82, emphasis in original) notes, "Instead of assuming that claims about environmental justice refer to a universal, monolithic agenda, we should ask what the term means in different contexts. *Environmental justice* might have one meaning for a community fighting for cleanup of a Superfund site and another meaning for one struggling to have a wastewater treatment plant built." Holifield's call for contextualized and nuanced analysis is particularly apposite in light of the cases discussed here, which involve not only the cleanup of a Superfund site *and* the (contested) construction of a wastewater treatment plant, but also profound and widespread environmental degradation and social marginalization, occurring over a period of two centuries. How then, do we understand environmental justice in this context? What conceptual tools are at hand to make sense of these problems? Before proceeding to our empirical discussion of environmental injustice in the Onondaga Lake watershed, we briefly review key conceptual frameworks prevalent in the environmental justice literature, in part to highlight their strengths and shortcomings, and in part so that they may serve as reference points for our analysis, below.

As has been widely discussed, environmental justice, as a framework for both research and activism, grew out of advocacy by the United Church of Christ and the pioneering scholarship of sociologist Robert Bullard (see, for instance, Bullard 1993, 2000; United Church of Christ Commission for Racial Justice 1987). Focused on the disproportionate exposure to environmental harms, and relative lack of access to environmental amenities, faced by communities of color in the American south, this early work placed emphasis on siting decisions (i.e. state and corporate decisions regarding the location of polluting or otherwise undesirable facilities such as wastewater treatment plants, industrial sites, solid waste facilities, or power generating plants). Such sites can be expressed in the shorthand LULU, or Locally Unwanted Land Use, a disproportionate number of which were shown to be located in communities of color, both rural and urban. At the heart of this approach is a focus on distributional justice: the

socially and spatially uneven distribution of LULUs. Valuable as this work is – both for its pioneering character and because such analysis remains vitally important in most environmental justice activism and scholarship today (as evidenced by the cases presented here) – it has been widely critiqued for its overly narrow focus on distributive justice and reliance on statistical analysis, to the relative neglect of alternative modes of analysis (e.g. Cole and Foster 2001; Pulido 2000; Holifield 2001; Holifield et al. 2009).

Such critiques prompted environmental justice scholars and activists to broaden their analytical frameworks in various ways. Cole and Foster (2001) and Holifield (2004), for instance, call attention to procedural and institutional justice (see also Gordon and Harley 2005; Newell 2007). This work highlights what may broadly be considered questions of governance: the multi-scalar institutional and legal frameworks that shape rights to access, processes of participation, and state, corporate and civil society actions. While not rejecting the distributive paradigm, this perspective moves beyond it to consider the ways that the social and spatial distribution of environmental injustices are (re)produced through institutionalized, structural forces and historically constituted social relations. As Cole and Foster (2001) demonstrate, environmental injustice can as easily result from so-called ‘race-blind’ policies as from deliberately racist decision-making by state or corporate actors. In this sense, racially- or class based-bias in environmental decision-making may not be *intentional*, but in most cases it is far from a *random* outcome. Rather, injustice, environmental and otherwise, is frequently a predictable outcome of existing legal and institutional frameworks through which environments and populations are governed. This insight highlights the need for more historically rich and theoretically nuanced analyses than are possible with a focus on distribution alone.

A paradigmatic example of this approach is Laura Pulido’s analysis of white privilege and urban development in Los Angeles (Pulido 2000). While retaining her focus on the proximity of communities of color to LULUs, Pulido inverts the original environmental justice framework. Rather than inquire as to why African Americans and Latinos are disproportionately exposed to pollution, she asks why it is that white people are disproportionately able to avoid both pollution *and* people of color. This line of inquiry necessarily involves examination of historically sedimented and highly spatialized patterns of racial segregation, and the institutional structures that gave rise to such patterns and reproduce them today. Pulido’s work, with its emphasis on urban segregation, spatial scale, racially differential patterns of spatial mobility, and political

economic structures that shaped these processes since the early 20th century, has served as something of a template for much environmental justice work of the past decade. Similar approaches have been taken by Sze (2007) in her analysis of the relationships between race and health in New York City, as well as in Heynen's work on the scalar production of environmental injustice in Indianapolis' urban forest (Heynen 2003).

In recent years, geographical research has moved in myriad directions that have extended the analytical and epistemological frontiers of environmental justice scholarship (Holifield et al. 2009). Examples include Holifield's adoption of Actor-Network Theory to examine the impacts of a hazardous waste site on Ojibwe peoples in Minnesota (Holifield 2009), Walker's examination of the multiple and complex spatialities of environmental injustice (Walker 2009), and work by Heynen (2003) and Swyngedouw and Heynen (2003) on the scalar politics of urban political ecology and environmental justice. Meanwhile, other scholars have pushed environmental justice analysis into international and global spheres, highlighting, for instance, international trade and the global politics of environmental inequality (Newell 2005, 2007), the contradictory layers of injustice in artisanal gold mining in Ghana (Tschakert 2009), the politics of solid waste management in Mexico (Moore 2008), and conflicts over agricultural development in Brazil (Wolford 2008). There is little doubt, then, that environmental justice scholarship has flourished in the two decades since the term first made its appearance.

A pivotal moment in this evolution came in 2005 with Hurricane Katrina. Perhaps more than any other recent event in US history, Katrina and its aftermath trained the attention of scholars, activists, journalists and popular sectors alike on the structural disparities and social vulnerabilities inherent in urban America. This is, of course, not a new story, and examples abound. But New Orleans is a special case: its low-lying topography, majority African American population, long history of European and African settlement, and stark disparities between rich and poor make it nearly unique in the United States (Colten 2005). The deeply racialized and class-based effects of Katrina have demanded a conceptually diverse and historically informed analysis that incorporates, but moves beyond, a focus on distributive justice, procedural justice, and white privilege (Rydin 2006). In order to make sense of Katrina, scholars have had to examine not only these categories, but also the steady transformation of the Gulf Coast region's wetlands, which serve as a buffer against tidal surges; long histories of institutionalized discrimination and segregation in the southern US; planning decisions that

located public housing in the most flood-prone portions of the city; state priorities and procedures that led to an inefficient and inadequate response; and media representations that portrayed hurricane victims as either potentially dangerous looters or hapless refugees in their own country (see, for instance, Bullard and Wright 2009; Dyson 2006; Pastor et al. 2006; Rydin 2006). In short, analysis of Katrina's effects on New Orleans necessitates a conceptually integrated approach. It is this approach that we attempt to emulate in the current analysis, as we hope to integrate broader temporal and spatial scales of analysis to examine processes of environmental injustice and social marginalization in disparate times and places. In doing so, we argue that this broader analytical frame allows us to consider the connectedness of events and processes that may otherwise seem unrelated.

Waterscapes of (In)justice

In the empirical discussion below, we examine two cases of environmental injustice in the Onondaga Lake watershed in central New York state: (1) the case of the Onondaga Nation, a Native American nation that retains part of its ancestral territory south of the city of Syracuse, New York, and whose rights to and uses of the Onondaga Lake watershed (particularly Onondaga Creek, a major tributary) have been severely reduced through historical processes of Euro-American settlement and industrial development; and (2) the case of the Southside neighborhood, a lower-income, predominantly African American community in Syracuse, which was chosen as a site for a satellite sewage treatment facility, as part of a broader effort to remediate pollution in Onondaga Lake. At first glance, these cases appear to have little in common. They differ in location (one is rural, the other inner-city), demographics (Native American and African American), and historical time frame (the Onondaga Nation case dates to the early days of Euro-American settlement in the 18th century, whereas the Midland Avenue case dates to the late 1990s). Connections between the cases become apparent, however, when viewed through a broader temporal and spatial lens. In the most basic sense, both the Onondaga Nation and the Southside neighborhood are located within the Onondaga Lake watershed. Onondaga Creek runs through Onondaga Nation lands before arcing northward through the Southside neighborhood (and other communities) on its way to Onondaga Lake. Sedimentation events (see below) and agricultural runoff affect both communities, as do the historical transformations of the creek's ecosystem.

But the continuities between these cases are not limited to spatial proximity or a shared waterway. Rather, they are located primarily in what, following Bakker (2002, 2003) and Swyngedouw (2004), may be considered the hydro-social relations that have made water integral to processes of both accumulation and social exclusion within the watershed. In part, the spatial and temporal relations of injustice examined in this paper are rooted in the very materiality of water itself: its ability to flow permits it to serve as a medium for transporting people and goods, as well as providing a sink for industrial and municipal wastes (which ideally are carried away by the water's current). These functions facilitated early Euro-American settlement and ensuing processes of urbanization and economic development. Indeed, Onondaga Creek and Lake were central to regional accumulation strategies throughout the 19th and 20th centuries, contributing to the construction of the Erie Canal, providing water for grain mills and salt production, and later as a sink for the wastes of municipal development and the city's chemical industry. Moreover, to the extent that these activities inhibit ecological processes (such as the reproduction and migration of fish and other aquatic organisms), and produce pollutants that are carried downstream, they connect peoples and places across time and space. As permanent geo-ecological features on the landscape, the lake and creek are necessarily trans-generational, and as spatially extensive features that flow, the lake and creek link communities throughout the watershed. Such facts are deceptively simple, however, and belie the uneven relations of power that inhere in hydro-social geographies of Onondaga Lake's watershed. As Swyngedouw (2004: 23) avers, we must be attentive to social relations of power "through which socio-environmental processes take place. It is these power geometries and the social actors who carry them out that ultimately decide who will have access to or control over, and who will be excluded from access to or control over, resources or other components of the environment. These power geometries, in turn, shape the particular social and political configurations and the environments in which we live." Water, then, is no politically neutral element of nature, but rather a socio-nature: socially produced and mediated, it is both a factor of production and a strategy for accumulation, and therefore a bearer of highly uneven social relations. As central to capitalist development as it is universally necessary for life itself, water has been integral in the establishment and consolidation of highly racialized configurations of social power in Central New York. It has also, not coincidentally, figured centrally in the social struggles of the region's marginalized peoples. Such a perspective allows us to ask, *How are relations of power, social exclusion,*

environmental transformation, and environmental injustice connected historically and geographically through the flow of water in the Onondaga Lake watershed? This question is taken up below, through close examination of the cases of the Onondaga Nation and Syracuse's Southside neighborhood.

Geographical and Historical Context

Onondaga Lake is situated immediately north of the City of Syracuse in Onondaga County of central New York State (Effler and Harnett 1996). The lake and its approximately 738 km² watershed lie at the center of the aboriginal territories of the Haudenosaunee, a name that is translated as "People of the Longhouse" and refers to the citizens of an ancient confederacy of Native American nations² (Ecologic, Rudstam, and Anchor QEA 2010; Venables 1995). The lands of the Haudenosaunee once stretched across most of the region now called New York State and into surrounding areas such as modern-day Pennsylvania, Ontario, and Québec (Venables 1995; George-Kanentiio and Johansen 2000). These lands were held in common but inhabited respectively from east to west by the Mohawk, Oneida, Onondaga, Cayuga, and Seneca Nations (George-Kanentiio and Johansen 2000; Mohawk 2005). The Onondaga Lake watershed lies entirely within the traditional homelands of the Onondaga Nation.³ In the late 18th and early 19th centuries, the Onondaga Nation was divested of most its land by New York State (George-Kanentiio and Johansen 2000; Gonyea 1986). Consequently, both the United States and the Onondaga Nation currently hold territory within the Onondaga Lake watershed.

Onondaga Lake receives water from six natural sub-basins (Ecologic, Rudstam, and Anchor QEA 2010). One of the largest of these tributaries, Onondaga Creek, flows generally northward through both the Onondaga Nation and the city of Syracuse before entering the lake (CNY RPDB 2010; Michalenko et al. 2009). In addition to traversing political boundaries, the creek

² The Haudenosaunee, commonly referred to in English as the Six Nations Iroquois Confederacy, was founded in ancient times by five indigenous nations: the Mohawk, Oneida, Onondaga, Cayuga, and Seneca. The Tuscarora Nation joined the Haudenosaunee in 1722 and migrated to New York from their homelands in North Carolina in order to avoid being enslaved by Euro-American colonists (Johansen and Mann 2000; Venables 1995; *Onondaga Nation v. State of New York et al.*, First Amended Complaint for Declaratory Judgment [2005]:3). The Onondaga Nation hosts and chairs meetings of the Grand Council, the traditional governing body of the confederacy (Gonyea 1986; *Onondaga Nation v. State of New York et al.*, Declaration of Sidney Hill [2006]:2).

³ *Onondaga Nation v. State of New York et al.*, First Amended Complaint for Declaratory Judgment [2005]: Exhibit A

crosses the geographical divide between the steep valleys of the Appalachian Plateau in the southern reaches of the lake's watershed and the southernmost edge of the comparatively flat Lake Ontario Plain, which begins where the city of Syracuse meets Onondaga Lake⁴ (CNY RPDB 2010; OEI 2008d; Kappel 2000). Along its way it gathers water from over 65 smaller tributaries, draining a total area of 288 km² (OEI 2008d:2). Within the limits of the city of Syracuse, Onondaga Creek also receives variable quantities of sewer discharge (Michalenko et al. 2009), as discussed further below.

Water exits Onondaga Lake by a single outlet at its northern end, emptying into the Seneca River and ultimately flowing north, by way of the Oswego River, into Lake Ontario. Onondaga Lake's natural hydrological connections with the other Finger Lakes of Central New York, Lake Ontario, and by extension the St Lawrence River and North Atlantic Ocean, have had an important influence upon its history (Effler and Harnett 1996; OEI 2008d). Prior to the mid-18th century, Atlantic salmon (*Salmo salar*) and American eel (*Anguilla rostrata*) migrated in great numbers through these waterbodies to reach Onondaga Lake and Onondaga Creek (Tango and Ringler 1996; Beauchamp 1908; OEI 2008b). Interconnection of the region's waterways also rendered Onondaga Lake an age-old link for communication and commerce between the Onondagas and the other Haudenosaunee (Onondaga Nation 2011; Chaumont and Dablon [1655] 1899; Fenton 1998). Euro-American settlers later utilized and altered these natural transportation corridors to further land speculation, defense, and transportation interests, thereby greatly accelerating commercial trade as well as the acquisition and colonization of Haudenosaunee lands (Fenton 1998; Hauptman 1999).

According to Euro-American historical sources and the modern oral history of the Onondagas, the Onondaga Lake watershed supported a remarkable abundance and diversity of flora and fauna prior to the 19th century. Salt springs dotted much of the lake's shoreline (Kappel 2000),⁵ creating inland salt marshes that, according to Jesuit missionaries who arrived in the mid

⁴ This geographic divide is also reflected by north-south variation within the region's humid continental climate. The uplands in the southern reaches of the watershed are generally wetter and cooler than the northern lowlands around Onondaga Lake (Effler and Harnett 1996; Marks and Gardescu 1992). Average annual precipitation for Central New York is around 40 inches (OEI 2008e: 1).

⁵ The origin of these salt springs lies in the bedrock of the southern reaches of Onondaga Creek's watershed, where halite deposits formed millions of years ago under an inland sea. These deposits were exposed through the action of glaciers that shaped the Onondaga Lake watershed between 100,000 and 14,000 years ago. When the last glacier retreated, the exposed salt deposits in the bedrock valley of Onondaga Creek's watershed were overlain with coarse

17th century, attracted rattlesnakes and many hundreds of pigeons (A Map of Part of Onondaga Lake [1800?]; Pursh 1869; De Quen [1657] 1899). Forested wetlands like cedar swamps and maple-ash swamps abutted large stretches of the lakeshore and enveloped the lower reaches of many tributaries (A Map of Part of Onondaga Lake [1800?]). The lake's "swampy and marshy" shores (Macaulay 1829:113-114) undoubtedly performed vital ecosystem functions such as helping to maintain water quality and reducing damage from erosion and flooding. These types of shallow water zones also tend to support a tremendous diversity of life⁶ (FISRWG 1998).

Historically, Onondaga Creek cut a sinuous channel through the low, flat land where the city of Syracuse stands today. Its lower reaches were bordered by wetlands that probably received the creek's overflow during its frequent floods (A Map of Part of Onondaga Lake [1800?]; OEI 2008d; Connors 2006). In the southern part of its watershed, Onondaga Creek passed through an extensively forested, hilly landscape with diverse vegetation including oak, sugar maple, chestnut, beech, elm, and white pine (OEI 2008e; A Map of Part of Onondaga Lake [1800?]; Bartram [1751] 1895; De Quen [1657] 1899).

The Onondagas made clearings throughout the Onondaga Lake watershed, including along the shores of the lake itself and in the watershed of Onondaga Creek, for the construction of settlements and cultivation of crops like corn, sunflowers, beans, and squash (Greenhalgh [1677] 1849; Tuck 1971; Onondaga Nation 2005). They periodically relocated their villages to find fertile soil, move closer to sources of firewood, and meet other community needs (Tuck 1971).

One of the features of the lake watershed noted repeatedly by early Euro-American travelers and settlers was its abundant and diverse cold water fishery⁷ (Auer et al. 1996; Beauchamp 1908). For many centuries, the region's fish communities were a vital food source for the

sediments, creating a conduit for the movement of groundwater over the salt deposits and downslope toward the southern shore of Onondaga Lake, where it re-surfaced in springs (Kappel 2000).

⁶ Wetland plants, like the cattails (*Typha angustifolia*) and wild rice (*Zizania aquatica*) that Paine (1865:79,113) reported as common around Onondaga Lake, would have provided food and shelter to countless organisms. For example, many fish species probably utilized the shorelines for spawning and nursery habitat (CNY RPDB 2010; Auer et al. 1996).

⁷ Historical records of large catches of whitefish (*Coregonus sp.*) indicate that the lake water had sufficiently high dissolved oxygen and low temperatures to support a cold water species assemblage (Auer et al 1996; OEI 2008b; Tango and Ringler 1996). Seventeenth century Jesuit missionaries remarked that Atlantic salmon and American eel were the most common fish in the area (De Quen 1657), saying of the latter: "eels are so abundant in the Summer that a man can harpoon as many as a thousand in one night" (Chaumont and Dablon 1655: 97). Later historical writers reported the presence of a variety of other fish in the region, including sturgeon, trout, burbot, pike, pickerel, bass, yellow perch, and catfish (Auer et al. 1996; Tango and Ringler 1996; Beauchamp 1908).

Onondagas (Onondaga Nation 2005). During the 19th century, Euro-Americans established a thriving sport and commercial fishery on Onondaga Lake (Nemerow 1964).

From the 1790s onward, intensive Euro-American settlement brought industrialization of the landscape and severe environmental degradation, of which only a brief survey can be offered here. In the last years of the 18th century, the brine springs around Onondaga Lake began to be exploited for the commercial production of salt, a valuable resource that proved a major driver of regional population growth throughout the 19th century (Effler and Matthews 2003; Connors 2006; Rowell 1996). Salt production, agriculture, and other development spurred widespread deforestation within the watershed, a trend that would continue through 1930, when forest cover in Onondaga County reached a nadir of eight percent. Heavy erosion resulted, negatively impacting water quality and damaging lakeside wetlands (Sly 1991; Clark 1849; FISRWG 1998; Nyland et al. 1986:114-117; Hauptman 1999).

Euro-American settlers also effected a series of dramatic changes to the shape of Onondaga Lake and its tributaries. Mills and dams impacted regional fish migration patterns and the quality of tributary habitat⁸ (Connors 2006; Sly 1991). Wetlands were drained, filled, and developed, particularly around the southern end of the lake where salt works were located (Ferrante 2005; Connors 2006; Kappel 2000). In 1828, two major branches of the Erie Canal were joined near the shores of Onondaga Lake, thereby providing the salt producers with access to supply routes and to more distant northern and western markets (Connors 2006; Sly 1991; Thompson 2002). The industry subsequently burgeoned and came to dominate the national salt market during the American Civil War (Thompson 2002; Connors 2006; Rowell 1996).

Economic prosperity and geographic proximity to major transportation corridors fostered the rapid expansion of Syracuse in the mid 1800s (Connors 2006). As development encroached upon the lower reaches of Onondaga Lake's tributaries, residents increasingly used them for sewage disposal (Effler and Harnett 1996). In order to speed the removal of waste to Onondaga Lake and lower the risk of property damage from flooding, the mouth of Onondaga Creek was moved southward and the lower portion of the creek stretching from the lake to the Onondaga Nation's northern border was gradually channelized⁹ between 1855 and 1963 (Michalenko et al. 2009;

⁸ For a detailed discussion of mills' and dams' impacts on aquatic ecosystems, refer to: Sly, P.G. 1991. The effects of land use and cultural development on the Lake Ontario ecosystem since 1750. *Hydrobiologia* 213: pp.1-75.

⁹ Channelizing a creek involves straightening and deepening its natural bed (OEI 2008e). The resulting habitat degradation is especially devastating to aquatic plants and macroinvertebrates, key links in the aquatic food web.

OEI 2008e). Other physical modifications made to the creek included the integration of its northern tributaries with the sewer network that drains Syracuse and surrounding municipalities as well as the construction of flood control barriers and impoundments along the length of the main creek channel (OEI 2008a, 2008d, 2008e).

Water quality in the Onondaga Lake watershed has been degraded by a host of anthropogenic pollutants. A long history of dumping municipal and industrial wastes in and around Onondaga Lake has had particularly devastating impacts. When Syracuse began developing a sewage treatment system in the 1920s, the city allowed for continued discharge of untreated sewage to Onondaga Creek via overflow points in sewers that carried both sanitary and stormwater sewage (Effler and Harnett 1996; Michalenko et al. 2009). These combined sewer overflows (CSOs) and the effluent from inadequate sewage treatment contributed very high loads of nitrogen and phosphorous to the lake throughout the remainder of the 20th century (CNY RPDB 2010; Ecologic, Rudstam, and Anchor QEA 2010; Effler and Matthews 2003; Effler, Brooks, and Whitehead 1996).

Industrial activity accelerated in Syracuse following the American Civil War (Effler and Harnett 1996). In 1884, the Solvay Process Company, a manufacturer of soda ash (Na_2CO_3), began operations on the western shore of the lake. For over 100 years, the company and its successors extracted local salt and limestone and utilized the lake as a source of cooling water (Effler and Matthews 2003). By the late 19th century, over-extraction from the salt springs near the lake had diluted the brine. Consequently, the Solvay Process Company began mining the halite deposits in the bedrock of the southern part of Onondaga Creek's watershed. The mining operations, which continued until 1986, resulted in the removal of over 96 million tons of salt and severe fracturing and subsidence of the bedrock (Kappel 2000:3,7). The chemical process of manufacturing soda ash also produced vast quantities of salty wastes. The facility used the lake and the surrounding wetlands as sinks for these wastes, ultimately covering over 8 km² of land (Effler and Matthews 2003:288). The soda ash facility later diversified its production, manufacturing over 30 chemical products before its closure in 1986 (Effler and Harnett 1996; Effler and Matthews 2003). Over the course of the 20th century, an array of highly toxic

Some channelized sections of Onondaga Creek within the limits of the City of Syracuse are also lined with concrete, further damaging stream bottom habitat and greatly reducing aquatic organisms' access to riparian vegetation. (OEI 2008a, 2008e; FISRWG 1998).

pollutants, including mercury and chlorinated benzenes, were deposited in and around the lake by the soda ash facility and other local industries (ASLF 2009).

Municipal and industrial waste disposal impacted Onondaga Lake's water quality in a variety of ways. Dissolved oxygen levels plummeted and water clarity decreased as the lake reached a state of hypereutrophy that persisted from the end of World War II through the turn of the century (Tango and Ringler 1996; Rowell 1996; Effler and Matthews 2003). Other impacts included heavy precipitation of calcite (CaCO_3), which altered the lake bottom sediments, and a sharp rise in salinity (Effler and Matthews 2003).

The specific effects of aquatic and terrestrial habitat destruction on the watershed's historical biota are too numerous to be delineated here. Some of the most notable changes with respect to the lake included a decline in rooted aquatic plants and invertebrates and the replacement of cold water fish species with a warm water fish community (Auer et al 1996). Toxic contaminants such as mercury and polychlorinated biphenyls (PCBs) accumulated in fish tissue, with the result that there are currently strict limits on human consumption of fish from the lake (Auer et al 1996; CNY RPDB 2010; New York State Department of Health 2011).

Onondaga Lake's water quality has been improving since 1970 as a result of various government efforts to mitigate municipal and industrial wastes as well as the closure of highly polluting industrial facilities (Rowell 1996; Effler and Harnett 1996). Onondaga County, which manages wastewater from the City of Syracuse and surrounding communities, is bound by a 1998 court order called the Amended Consent Judgment (ACJ) to upgrade its wastewater collection and treatment systems so that effluent from CSOs and the Metropolitan Syracuse Wastewater Treatment Plant ("Metro") complies with New York State and United States federal water quality regulations (CNY RPDB 2010; ASLF 2009; Onondaga Lake Cleanup Corporation 2001).¹⁰ This work is ongoing, as will be discussed below, but the lake ecosystem is already showing positive responses to decreased nutrient loading, including higher dissolved oxygen levels and compliance with New York State water quality standards for ammonia and nitrite (ASLF 2009; CNY RPDB 2010).

In 1994, Onondaga Lake's bottom and a number of other polluted areas in the watershed were listed on the Superfund National Priorities List, empowering the New York State and U.S. federal governments to compel responsible parties to complete part or all of the necessary

¹⁰ www.ongov.net/wep/we15.html (last accessed 26 September 2011)

hazardous waste remediation projects.¹¹ Each contaminated area is considered a subsite of the overall Onondaga Lake Superfund site and is assigned a unique remediation plan that proceeds according to its own schedule. Remedial actions at the subsites are currently at varying stages of completion (ASLF 2009).

Environmental degradation and remediation efforts in the Onondaga Lake watershed have affected local residents in a variety of ways. In the following section, we turn to two cases of impacted communities, that of the Onondaga Nation, south of the city of Syracuse, and that of residents of Syracuse's Southside neighborhood.

Environmental Justice Case Studies

Onondaga Nation

The impacts of local environmental degradation upon the Onondaga Nation must be understood within the context of their historical relationship to the land. The Onondagas have profound spiritual, cultural, and historical ties to the Onondaga Lake watershed.¹² Their people have continuously inhabited the region from time immemorial and the use of local natural resources forms an integral part of their culture. Historically, fish constituted approximately one-third of the Onondagas' diet. They gathered plants from lake and tributary shorelines for food as well as for medicinal and ceremonial purposes. Onondaga Lake and Onondaga Creek were also used for recreational boating, swimming, and long-distance transportation (Onondaga Nation 2005; Fenton 1998). The Onondagas' intimate relationship with the waters of their homelands is still reflected in the names of some of their matrilineal clans,¹³ such as the Turtle Clan, the Beaver Clan, the Heron Clan, and the Eel Clan (Onondaga Nation 2005). In interacting with their surroundings over the course of their long history, the Onondagas have striven to follow their spiritual instructions, which include the duties to respect the equal right of all parts of Creation to

¹¹ The Superfund program was established in 1980 by a U.S. federal law called the Comprehensive Environmental Response, Compensation, and Liability Act, abbreviated as CERCLA (ASLF 2009). According to CERCLA regulations, "remediation" is defined as actions that "prevent or minimize the release of hazardous substances so that they do not migrate to cause substantial danger to present or future public health or welfare or the environment." For the full legal text, refer to: Comprehensive Environmental Response, Compensation, and Liability Act. 42 USC § 9601 (1980).

¹² *Onondaga Nation v. State of New York et al.*, First Amended Complaint for Declaratory Judgment [2005]:1-2

¹³ *Onondaga Nation v. State of New York et al.*, Declaration of Sidney Hill [2006]: 3-6

exist and carry out their unique responsibilities¹⁴, to give thanks for the gifts of the natural world, and to preserve those gifts for the well-being of future generations (Lickers 1999; Onondaga Nation 2005; Gonyea 1999).¹⁵

Onondaga Lake is an especially sacred and historic site to the Onondagas and the rest of the Haudenosaunee people in large part because their confederacy was founded on its shores.¹⁶ The formation of the Haudenosaunee was accomplished through the establishment of a profound spiritual, political, and cultural framework called Gayanashagowa,¹⁷ known in English as the Great Law of Peace, which continues to guide the people today. The Great Law of Peace outlines a system of land ownership by which rights to land and resource use are held in common by the entire Haudenosaunee (Mohawk 2005).¹⁸

Euro-American colonization resulted in the imposition of a system of private land ownership and resource management throughout most of the Onondaga Nation's traditional homelands. After suffering the destruction of many of their villages during the American Revolution, the Onondaga Nation witnessed the transfer of all but 6,100 acres of its aboriginal territory to New York State between 1788 and 1822 (Blau, Campisi, and Tooker 1978:496; Venables 2004). The Onondaga Nation contends that the "treaties" by which they lost their land are void because they were made with unauthorized representatives of the Onondaga Nation and violated both Haudenosaunee and United States law.¹⁹ Of the multiple forces that drove Onondaga dispossession, two of the most significant were American land speculation and settlers' rush to secure access to Onondaga Lake's profitable salt springs²⁰ (Hauptman 1999; Connors 2006;

¹⁴ The Haudenosaunee believe that the Creator has given all parts of Creation special instructions that create different kinds of relationships between them. Failure to fulfill these responsibilities will result in social and natural disruption. The Creator expects the Haudenosaunee to always do their best to follow their spiritual instructions (Lickers 1999; Saraydar 1990).

¹⁵ www.onondaganation.org/land/declaration.html (last accessed 26 September 2011)

¹⁶ *Onondaga Nation v. State of New York et al.*, Declaration of Sidney Hill [2006]:5

¹⁷ *Onondaga Nation v. State of New York et al.*, First Amended Complaint for Declaratory Judgment [2005]:1-2

¹⁸ *Onondaga Nation v. State of New York et al.*, Declaration of Sidney Hill [2006]:6

¹⁹ *Onondaga Nation v. State of New York et al.*, First Amended Complaint for Declaratory Judgment [2005]:12-13

²⁰ As the result of a 1788 "treaty," the Onondaga Nation was left with a rectangular tract of land encompassing the southern end of Onondaga Lake (where Syracuse stands today) and the northern portion of Onondaga Creek. They also retained hunting and fishing rights in the lands they transferred to New York, and they were assured that Onondaga Lake and its shorelines would forever be held in common by the Onondaga Nation and New York State for the purpose of making salt (Blau, Campisi, and Tooker 1978:496; New York State Legislature 1889: 190). This arrangement left the Onondagas in control of the most productive salt springs (Connors 2006). Further "treaties" in 1793 and 1795 divested the Onondagas of this valuable northern land and their common right to Onondaga Lake and its shorelines (Blau, Campisi, and Tooker 1978; New York State Legislature 1889: 195-207). The Onondaga

Hauptman 1986). Also underlying the complex Euro-American expansionist agenda were racist claims that the Haudenosaunee and their lands were in need of “civilization” and “improvement” (Hauptman 1999). In the following decades, the Onondaga Nation successfully resisted the redoubling of cultural oppression as well as pressure from New York State and US federal governments to impose private ownership of property and American citizenship upon the Onondaga people (Hauptman 1986; Venables 1995).

Although Onondagas continue to exercise their traditional resource use rights²¹ throughout their historical lands,²² they have been hampered in doing so by restriction of access to private property and conflicts with New York State government regulations on harvesting (Michalenko et al. 2009; Kirst 1991). Over 200 years of regional environmental degradation has further eroded those rights. The extirpation, decline, or contamination of many animal and plant species in the Onondaga Lake watershed contributed greatly to the dramatic alteration of subsistence practices²³ among the Onondagas (Beauchamp 1908; Shenandoah 2006; Parsons 2009). The Onondagas have expressed particular concern over the unavailability of local fish²⁴ and riparian plants for traditional uses (Onondaga Nation 2005, 2011; Gonyea 1999).

The Onondaga Nation’s ability to use the creek that runs through its territory has also suffered (Gonyea 1999). Two changes to Onondaga Creek that have disproportionately affected

Nation’s oral history maintains that their land, especially the lake and its shorelines, was only leased to New York State (*Onondaga Nation v. State of New York et al.*, Declaration of Sidney Hill [2006]:12).

²¹ The Onondagas’ traditional resource use practices are properly considered rights, and have historically been referred to as such. Onondaga leaders understand and discuss these practices as rights (Kirst 1991; *Onondaga Nation v. State of New York et al.*, Declaration of Sidney Hill [2006]:5). According to noted Haudenosaunee historian John Mohawk, this interpretation is codified in the Great Law of Peace: “[The Peacemaker] said the territories were common to all and that each individual member of any of the nations had full rights of hunting and occupation of all the lands of all the nations of the People of the Longhouse” (2005:35; SUNY Buffalo 2006). New York State’s 1788 “treaty” likewise acknowledged the Onondagas’ subsistence rights: “The Onondagas and their posterity forever shall enjoy the free right of hunting in every part of the said ceded lands, and of fishing in all the waters within the same” (New York State Legislature 1889: 190). In 2010, the United States endorsed the United Nations Declaration on the Rights of Indigenous Peoples, which affirms traditional resource use practices as rights, particularly in Articles 20, 24, 25, and 26 (Richardson 2010; United Nations Declaration on the Rights of Indigenous Peoples, 2007, General Assembly Resolution 61/295, www.un.org/esa/socdev/unpfii/en/declaration.html, last accessed 25 September 2011).

²² *Onondaga Nation v. State of New York et al.*, Declaration of Sidney Hill [2006]:4-5

²³ www.onondaganation.org/land/faq.html#ah (last accessed 26 September 2011)

²⁴ The New York State Department of Health advises women under age 50 and children under age 15 not to eat any fish from Onondaga Lake. It is not recommended for men to consume largemouth bass or smallmouth bass over 15 inches in length, carp, channel catfish, white perch, or walleye due to contamination with mercury, polychlorinated biphenyls (PCBs), and dioxin. Most other fish in Onondaga Lake should not be eaten more than once per month by men (New York State Department of Health 2011:7-8; ASLF 2009). Other highly contaminated animals currently found in and around Onondaga Lake include snapping turtles and wild waterfowl (New York State Department of Health 2011:36; Parsons 2009).

the Onondaga Nation were the construction of a flood control dam and the advent of heavy sediment deposition from mudboils (Gonyea 1999; Speer 2010). The former was built in 1949 on the Onondaga Nation's territory by the U.S. Army Corps of Engineers (Michalenko et al. 2009). Its construction was part of a broader effort to protect the city of Syracuse from flood damage, and it is the largest of the structures built for that purpose (OEI 2008c). Siting the 1,780-foot long, 67-foot high dam and associated flood control features on the Onondaga Nation resulted in a significant loss of land (Michalenko et al. 2009; OEI 2008d; USACE 2011:8-9,12). Moreover, protection of Syracuse has come at the cost of increased risk of flooding over an area of approximately 860 acres upstream of the dam, much of this land lying within Onondaga Nation territory (OEI 2008e: 9; USACE 2011:9, Appendix A Fig 3). The structure also impedes boat traffic and fish migration (Michalenko et al. 2009; USACE 2011). Recent research has shown that the dam plays a vital role in flood control downstream, but could be partially removed if alternative control measures, such as wetland storage areas, were engineered (Endreny and Higgins 2008).

The first written historical record of mudboils²⁵ in the Onondaga Creek watershed is a local newspaper article published in 1899, about a decade after the Solvay Process Company began mining for brine along the upper reaches of the creek (Kappel 2009; Speer 2010). Mudboil activity increased greatly in the late 1930s and has been continuous since the 1950s (Kappel 2009; OEI 2008g). The proximate causes of mudboil activity are disputed. The Onondaga Nation contends²⁶ that the severe fracturing of land caused by brine mining in the creek's headwaters has led to increased artesian pressure and sediment discharge by mudboils upstream of its territory in the valley below (OEI 2008d). The U.S. Geological Survey (USGS) has confirmed that the collapsed land in the former mining areas is a path for surface water to enter the aquifers that

²⁵ The mudboils in Onondaga Creek's watershed are geological phenomena that discharge groundwater, dissolved mineral salts, and fine sediments as a result of artesian pressure in the aquifers underlying the valley floor. They can vary in size from a few inches to over 30 feet in diameter, and stand up to several feet high. Their formation and subsequent discharge patterns are driven by changes in artesian pressure and can be unpredictable (Kappel 2009:2; Kappel 2010: 3; OEI 2008f:1-2). Mudboil activity is accompanied by subsidence of surrounding land due to the erosion taking place under the land's surface (OEI 2008f). In an unpublished report, Kappel (2010) suggests that mudboils may have been intermittently present in the Onondaga Creek watershed since the last glacial retreat.

²⁶ Joseph J. Heath, General Counsel for the Onondaga Nation, personal communication, 12 July 2011; www.onondaganation.org/land/off_honeywell.html (last accessed 26 September 2011)

feed the mudboils, but has not acknowledged a direct causal link to the mudboils themselves²⁷ (Kappel 2009, 2010).

Sediment discharge from the mudboils became severe by the early 1970s. Remediation projects carried out by the USGS in the 1990s were successful in reducing the amount of sediment entering the creek from nearly 30 tons per day in 1992 to less than 0.5 ton per day by the end of the decade (Speer 2010:1; Kappel 2009:4). In early 2010, however, mudboil activity unexpectedly spiked, greatly increasing the creek's sediment load (Kappel 2010; Speer 2010). Decades of turbid conditions have impaired the creek's aquatic habitat and stressed its fish populations (OEI 2008f, 2008g; CNY RPDB 2010). The Onondagas, whose elders recall how the creek's clear waters formerly brought residents together for fishing, plant harvests, social and ceremonial gatherings, and swimming, have seen dramatic changes in their community's interactions with the creek (OEI 2008g; Speer 2010; Gonyea 1999).

Onondaga leaders argue that infringement of their nation's traditional resource use rights and desecration of its aboriginal territory, especially places like Onondaga Lake that are central to its culture, have harmed their people's cultural, economic, physical, emotional, and spiritual well-being²⁸ (Gonyea 1999; Shenandoah 2006). The Onondaga Nation has repeatedly protested American acquisition of its land and the land's subsequent degradation. It has also worked for environmental and archaeological protection in its aboriginal territory through government-to-government consultations, legal actions, education and outreach efforts, and partnerships with neighboring American communities.²⁹

On March 11, 2005, the Onondaga Nation filed a lawsuit in U.S. federal court asking for a declaratory judgment that New York State's acquisition of Onondaga lands between 1788 and 1822 was illegal, and that the Nation therefore still holds title³⁰ to approximately 4,000 square

²⁷ For more information about the hydrology of the area, refer to the USGS publications list available online at: <http://ny.cf.er.usgs.gov/nyprojectsearch/projects/2457-A35-1.html> (last accessed 26 September 2011)

²⁸ *Onondaga Nation v. State of New York et al.*, Declaration of Sidney Hill [2006]:5,7,9; www.onondaganation.org/land/faq.html#ah (last accessed 26 September 2011)

²⁹ *Onondaga Nation v. State of New York et al.*, First Amended Complaint for Declaratory Judgment [2005]:14-15; *Onondaga Nation v. State of New York et al.*, Declaration of Joseph J. Heath, Esq. [2006]: 6-7,10-15,19-20; www.onondaganation.org/land/stewards.html (last accessed 26 September 2011)

³⁰ The Onondaga Nation argues that the distinction between property title and possession under U.S. law should allow for the recognition of the Onondaga Nation's title without the disruption that would result from transferring physical possession of its territories (*Onondaga Nation v. State of New York et al.*, Plaintiff's Memorandum of Law in Opposition to Defendants' Motions to Dismiss [2006]:6-7). The Onondaga Nation has declared publicly that it will not use its land title to evict current landholders or to seek monetary damages from individuals (*Onondaga Nation v. State of New York et al.*, Declaration of Sidney Hill [2006]:8).

miles stretching from the St. Lawrence River and the eastern shore of Lake Ontario south to the Pennsylvania border (McAndrew 2005). The Onondaga Nation views this suit, which it refers to as a land rights action³¹, as a step toward healing its relationships with all those who live in its traditional homelands.³² Its leaders have expressed the hope that recognition of their nation's property title would initiate negotiations with New York State regarding the acknowledgment and redress of the many injustices their people have endured over the past two centuries (Hill 2006; McAndrew 2005).³³ In articulating those injustices to the public, Onondaga leaders have laid special emphasis on environmental degradation (McAndrew 2005). Tadodaho Sidney Hill has explained, "We want to use this action to put us at the table and enforce your laws and exert our laws of responsibility for the earth, water, air and animals" (quoted in McAndrew 2005). Among the list of defendants named in the Onondaga Nation's land rights action are specific corporations that it claims are responsible for local environmental degradation,³⁴ including Honeywell International Inc, the corporate successor of the Solvay Process Company (Effler and Matthews 2003). The Onondaga Nation has argued that remediation projects being carried out by Honeywell under the Superfund program³⁵ are not adequate to protect the health of the lake ecosystem (Hill 2006).

The Onondagas believe that by using their land title to exert greater influence over regional environmental planning,³⁶ they will be fulfilling their spiritual mandates and helping to achieve justice for all Creation³⁷ (Hill and Shenandoah 2006; Kirst 2005; McAndrew 2005). The nation's leadership has also articulated a number of other long-term objectives for its land rights action. These include recovering some of its aboriginal lands from New York State or willing sellers, securing resource use rights to support their subsistence and cultural needs, ensuring protection of archaeological sites, resolving taxation and jurisdiction conflicts with U.S. state and federal

³¹ www.onondaganation.org/land/faq.html#ai (last accessed 26 September 2011)

³² *Onondaga Nation v. State of New York et al.*, First Amended Complaint for Declaratory Judgment [2005]:1-2

³³ *Onondaga Nation v. State of New York et al.*, Plaintiff's Memorandum of Law in Opposition to Defendants' Motions to Dismiss [2006]:7-8

³⁴ *Onondaga Nation v. State of New York et al.*, First Amended Complaint for Declaratory Judgment [2005]:5-6

³⁵ Official documents relating to the remediation of the Onondaga Lake Superfund site are available from the New York State Department of Environmental Conservation at www.dec.ny.gov.

³⁶ www.onondaganation.org/land/faq.html#ai (last accessed 26 September 2011)

³⁷ For an analysis of some of the cultural concepts informing the Onondaga Nation's land rights action, including the importance of restoring proper relationships amongst humans and between humans and the rest of Creation, refer to: Tauxe, Caroline. Onondaga Lake Cleanup: A Case Study of Environmental Conflict & Cross-Cultural Coalition. *Peace Studies Journal*. 4(1): 1-25.

governments, and achieving economic self-sufficiency in order to support a myriad of national initiatives including agricultural and environmental restoration programs.³⁸

In September 2010, a U.S. federal judge dismissed the Onondaga Nation's suit, declaring, despite the Onondagas' arguments to the contrary³⁹, that the land rights action was disruptive and that too much time had elapsed since the alleged offense (McChesney 2010).⁴⁰ The Onondaga Nation has appealed its case. If in future their options within the U.S. court system are exhausted, Onondaga leaders are prepared to address international courts (Hill and Heath 2010).

The General Counsel for the Onondaga Nation has stated that since the initial filing of their land rights action, the Onondagas have maintained and strengthened their positive relationships with neighboring American communities and collaborated with them on environmental projects such as the installation of green infrastructure⁴¹ in the City of Syracuse (Hill and Heath 2010; Knauss 2010a).⁴² The Onondaga Nation has also continued to voice its concerns about remediation plans for Onondaga Lake. In 2010, it published a document titled The Onondaga Nation's Vision for a Clean Onondaga Lake⁴³ that outlines specific goals for the lake informed by the Onondagas' unique cultural perspective and needs. The Onondaga Nation has advanced this alternative vision for the future in its ongoing public outreach efforts⁴⁴. It is also participating in government-to-government discussions about future lake restoration efforts as part of the Natural Resource Damage Assessment and Restoration⁴⁵ process for the Onondaga Lake Superfund site (United States Fish and Wildlife Service 2009).

³⁸ www.onondaganation.org/land/goals.html (last accessed 26 September 2011)

³⁹ For the Onondaga Nation's arguments against dismissal of its case, refer to: *Onondaga Nation v. State of New York et al.*, Plaintiff's Memorandum of Law in Opposition to Defendants' Motions to Dismiss [2006].

⁴⁰ *Onondaga Nation v. State of New York et al.*, Memorandum-Decision and Order [2010]:13-16

⁴¹ The term "green infrastructure" refers to conserved natural areas and engineered systems that maintain beneficial ecological functions. Incorporating green infrastructure into urban environments can help reduce negative environmental impacts of development (Kloss and Calarusse 2006; Podolsky and MacDonald 2008).

⁴² *Onondaga Nation v. State of New York et al.*, Declaration of Joseph J. Heath, Esq. [2006]:6-12

⁴³ The latest edition of this document is available from the Onondaga Nation's website, www.onondaganation.org.

⁴⁴ www.oei2.org/OnonLakeCommunityEd.html (last accessed 26 September 2011)

⁴⁵ Under CERCLA, Superfund hazardous waste remediations are complemented by the Natural Resource Damage Assessment and Restoration (NRDAR) process. The NRDAR process for the Onondaga Lake Superfund Site is being administered by three "Trustees": the Onondaga Nation, the US Department of Interior's Fish and Wildlife Service, and the New York State Department of Environmental Conservation. The Trustees will work, within NRDAR's legal framework, to restore or replace the natural resources of Onondaga Lake that were injured by decades of industrial pollution (United States Fish and Wildlife Service 2009; Trustees 2010). For more information about NRDAR, refer to the website of the United States Environmental Protection Agency: <http://www.epa.gov/superfund/programs/nrd/primer.htm> (last accessed 26 September 2011)

For many years, the Onondagas' struggle for environmental justice has intersected with neighboring communities' environmental activism (Hill and Heath 2010; Gonyea 1999). In the following section, we examine one such protest movement supported by the Onondaga Nation,⁴⁶ the opposition by Syracuse residents to the construction of a sewage treatment plant in their Southside neighborhood (Lane and Heath 2007; Adams 2003).

Partnership for Onondaga Creek

Before emptying into Onondaga Lake, Onondaga Creek's channel runs for nine miles through the City of Syracuse (Adams 2003). Like many aging cities in the northeastern United States, Syracuse has long relied upon the creek and the lake's other tributaries to receive overflow from its combined sanitary and stormwater sewers during major runoff events. By the end of the 20th century, Onondaga Creek was receiving diluted untreated sewage about 50 times per year from 45 of the 66 total combined sewer overflows (CSOs) sited within the city limits. (Effler and Harnett 1996:9,17-18). The degradation of the creek's and lake's water quality resulting from municipal waste disposal led to the filing in 1988 of a lawsuit by the Atlantic States Legal Foundation⁴⁷ (ASLF) and New York State against Onondaga County, which owns and operates the sewer lines fitted with CSOs as well as Metro⁴⁸, the sewage treatment plant that serves Syracuse and surrounding areas (Adams 2003; CNY RPDB 2010). ASLF and New York State accused Onondaga County of violating state and federal water quality regulations. The lawsuit ultimately produced a court order for pollution mitigation by Onondaga County, known as the Amended Consent Judgment (ACJ)⁴⁹, which included requirements for a series of infrastructure upgrades to Metro and the CSOs (Ecologic, Rudstam, and Anchor QEA 2010).

The ACJ has been revised four times since its initial signing in 1998. The latest revision, approved in November of 2009, represented a significant change in the county's approach to the problem of CSOs and has earned the praise of the United States Environmental Protection Agency (USEPA). The new plan is due largely to a unique collaboration between the county, the Onondaga Nation, ASLF, and the Partnership for Onondaga Creek, a grassroots environmental

⁴⁶ www.onondaganation.org/land/stewards.html (last accessed 26 September 2011)

⁴⁷ The Atlantic States Legal Foundation is a non-governmental organization based in Syracuse, NY that provides legal, organizational, and technical assistance to individuals and organizations with environmental concerns. For more information, visit www.aslf.org.

⁴⁸ *ASLF v. Onondaga County*, Amended Consent Judgment ("ACJ") [1998]: 1-2

⁴⁹ *ASLF v. Onondaga County*, Amended Consent Judgment ("ACJ") [1998]: 1-12

justice organization⁵⁰ (Knauss 2009a, 2010a, 2010b; Ecologic, Rudstam, and Anchor QEA 2010). The roots of this policy change lie in a decade of mobilization by residents against what they perceived to be discriminatory, socially disruptive, and environmentally damaging responses to the city's wastewater dilemma (POC 2006; Adams 2003). The Partnership for Onondaga Creek (POC) played a leading role in those protests (Adams 2003).⁵¹

The POC was formed in 2000 by residents of Syracuse's Southside community, a predominately African American, low-income neighborhood⁵², in opposition to a particular component of the county's plan to meet the ACJ's requirements for CSO mitigation. In 1999, the county unveiled plans to construct a 30,000 ft² rudimentary sewage treatment plant, known as a regional treatment facility (RTF), along a portion of the creek that passed through a Southside residential area. Effluent from six CSOs⁵³ would be transported nearly 1.5 miles through a 12 foot-diameter pipe to the RTF, where centrifuge-like technology would separate the solids from the liquid waste. Solids would be sent to Metro for treatment, while the liquid waste would be disinfected with chlorine bleach, dechlorinated, and discharged to the creek an estimated 10 times per year (Adams 2003:5-8,88,92-93; Knauss 2009b).

Emerging from a diverse group of protesters with an array of concerns about the impending construction project, the POC developed a multi-faceted critique of the county's plan (Adams 2003). One thrust of its arguments centered on potential harm to the environment, particularly its members' concerns about the release of partially treated sewage and harmful chemicals into the creek and what effects they might have upon the aquatic environment and air quality (Adams 2003; POC 2004, 2006). The group also focused its criticism on what it perceived as a lack of opportunities for public participation in environmental decision-making as well as the RTF's potential negative social impacts, including resident relocation, neighborhood disruption, and social stigmatization. The POC argued that the county's siting decisions constituted

⁵⁰ www.onondagacreek.org/about (last accessed 26 September 2011)

⁵¹ www.onondagacreek.org/history (last accessed 26 September 2011)

⁵² Syracuse's Southside neighborhood is often geographically defined as the area within United States Census tracts 42, 52, 53, 54, 58, and 59 (Adams 2003:4). According to the United States Census Bureau, the population is approximately 80% African American (2010a). The most recent (2004-2009) annual per capita estimates range from \$6,329 in census tract 42 to \$14,476 in census tract 54. By contrast, city-wide annual per capita income for the same time period was estimated at \$17,652 (United States Census Bureau 2010b).

⁵³ At the time, a total of 21 CSOs emptied into the stretch of Onondaga Creek that passes through the Southside. They discharged between 50 and 60 times per year, filling the air with the stench of sewage. In addition to constructing an RTF, the county's plan called for eliminating 12 of these CSOs by separating sanitary from stormwater sewers and modifying 3 CSOs so that their discharge rate was about once per year (Adams 2003: 4-5,7-8).

environmental racism because the potential environmental and social impacts of the proposed RTF would disproportionately affect the Southside community and impede residents' efforts to overcome the pressures of substandard housing, a degraded creek environment, industrialization and its attendant pollution, and a history of forced relocation in the wake of urban construction projects (Adams 2003; POC 2004).

Memories of previous forced relocations had a particularly strong impact on Southside residents' perceptions of the county's RTF plans. In the 1950s, most of Syracuse's African American population lived in a central area of the city called the Fifteenth Ward. In the 1960s, despite vigorous protests, thousands of Fifteenth Ward residents were displaced by an urban renewal project, the construction of an interstate highway, and the expansion of a hospital. A paucity of affordable housing, widespread discriminatory housing practices, and an exodus of white residents aggravated racial segregation in the city. Many Fifteenth Ward families relocated to the Southside, where they experienced additional disruption in the 1970s with the expansion of an existing bus garage. Southside residents successfully resisted the county's attempt to build a garbage-powered steam plant in their community during the 1970s, and in the 1980s they negotiated with Syracuse University and the city to reach an agreement regarding the expansion of an existing steam plant in the Southside (Adams 2003). In light of this history of land conflict and other disproportionately severe community burdens, the county's plans to build a large above-ground sewage treatment plant in a Southside residential neighborhood were viewed by many protesters as perpetuation of oppressive power structures and unjust targeting of the community for further disruption (Adams 2003; POC 2004).

In the first few years of the POC's protests against the RTF, its members worked to communicate its various criticisms of the county's plans to elected officials and the public. They also investigated and proposed alternative courses of action for CSO mitigation (Adams 2003; Lane and Heath 2007). The POC was successful in gaining the support of the Syracuse city government, and in 2001 the city responded positively to residents' petitions requesting that it refuse to sell the requisite land to Onondaga County (Adams 2003). The county reacted to this obstacle by suing the city, and formal negotiations were arranged in an effort to resolve the conflict. The Onondaga Nation, which claimed a historical and legal interest in Onondaga Creek and which supported the POC from the outset of its advocacy, requested and was granted admission to the negotiations being held between the county, city, ASLF, and the New York

State Department of Environmental Conservation (NYSDEC) (Adams 2003; Lane and Heath 2007). The POC likewise submitted a request to be included in negotiations and was ignored, spurring its members to arrive at the talks uninvited and request entry (Adams 2003).

This tactic proved successful. The group was admitted as a party to the negotiations and was ultimately instrumental in bringing to the table an alternative facility design that would store CSO effluent underground until it could be piped to Metro for treatment⁵⁴ (Adams 2003). The new design gained the support of all parties except for the county (Sieh and Weiner 2002). After nine months, the county abruptly ended the group negotiations in August of 2002 and entered into private talks with the city (Adams 2003; Sieh and Weiner 2002). On November 21, a court ruled in the county's favor, allowing it to take the land needed for the RTF (Adams 2003; Weiner 2002b).

In late 2002, the county unveiled a new design for an above-ground, chlorine-based RTF that featured some concessions to the other parties involved in the negotiations (Adams 2003; Parsons 2008; Pirro 2002). The above-ground building was downsized to 24,000 ft² and moved 160 feet away from nearby homes. Engineers also added an underground storage tank that would reduce the annual number of discharges to Onondaga Creek (Adams 2003: 155-156; Lane and Heath 2007:8; Weaver 2003; Pirro 2002). The POC members and many of their allies found this new plan unacceptable and continued their protests, bolstered by heightened media attention on the issue (Adams 2003).

The demolition of homes and commercial buildings for preparation of the construction site began in the summer of 2004 (Weiner 2004). Thirty-two families were evicted and relocated as a result of the RTF's construction (Sieh 2000; Weaver 2004). According to the POC, evictions associated with installation of the plant's massive pipeline brought the total number of displaced families to 42. The organization argues that 36 of those households were inadequately compensated by the county (POC 2006:4.2; Lane and Heath 2007:16). During the construction, POC members' protests included acts of civil disobedience and the filing of a Title VI

⁵⁴ The POC advocated underground storage of CSO effluent for several reasons. Although the construction of the facility would still have entailed considerable neighborhood disruption, POC activists felt that the two smaller above-ground buildings required under this alternative plan (approximately the size of a single-family and two-family home, respectively) would be less stigmatizing for the community and would not threaten efforts to revitalize the area. Moreover, the POC argued that because the underground storage facility would not discharge chlorine to the creek, the health of residents and the aquatic ecosystem would be protected (Adams 2003; Lane and Heath 2007; Sieh 2002).

administrative complaint⁵⁵ asking the USEPA to rule that the project was discriminatory (Lane and Heath 2007). The USEPA initiated an investigation, but did not freeze federal funds⁵⁶ for the project or visit Syracuse as the POC had originally hoped. Nearly a year after it was first filed, the USEPA dismissed the Title VI claim, and the POC challenged the decision. They received permission to forward the USEPA additional information that supported their case, a massive task which they completed in late 2006 (Lane and Heath 2007).

In its submission⁵⁷, the POC presented evidence to support its argument that the county's RTF project on the Southside and plans for similar facilities in Syracuse's Downtown and Westside neighborhoods disproportionately burdened low-income minority communities with negative impacts including evictions, the stigma of living next to a sewage plant, disruptions from construction work, and degraded water and air quality.⁵⁸ By contrast, the POC argued, the wealthier and predominately Euro-American Northside neighborhood received a less disruptive combination of facilities that fail to adequately mitigate CSO pollution in that part of the city. Consequently, most of the burden of required pollution control is shifted onto the Southside, Downtown, and Westside communities (POC 2006; Lane and Heath 2007). The POC's submission also made the case that the county and its established group of engineering firms actively worked to eliminate public involvement in decision-making about CSO control and

⁵⁵ Under Title VI of the 1964 Civil Rights Act, any program or project that receives monetary assistance from the US federal government cannot discriminate on the basis of color, race, or national origin. It is possible for individuals to file administrative complaints with federal government agencies such as the USEPA to allege that projects benefitting from federal funds have permitted intentional discrimination or have produced discriminatory effects. According to the USEPA, in order to prove a claim of discriminatory effects (which are not necessarily the result of active intent to discriminate), it is necessary to show that the project under scrutiny is not justified and that there are less discriminatory alternatives (www.epa.gov/ocr/t6home.htm, last accessed 26 September 2011). Historically, claimants have had extreme difficulty proving a violation of Title VI without proof of intent to discriminate (Pellow and Brule 2005).

⁵⁶ The RTF project was part of a broader plan to clean Onondaga Lake that relied on US federal, New York State, and local funding (Weiner 2006).

⁵⁷ The POC's submission of "new and significant" information pertaining to its Title VI claim is available through the organization's website, www.onondagacreek.org.

⁵⁸ In its Title VI claim, the POC argued that disinfection of CSO effluent with sodium hypochlorite or chlorine would produce toxic by-products that would be discharged along with the treated effluent into Onondaga Creek. Some of these by-products would contaminate the water while others would volatilize, degrading air quality. The POC made the case that additional threats to air quality would be especially burdensome to the Southside, an area that is already affected by industrial and traffic air pollution and struggles with some of the highest asthma rates in the county (POC 2006).

withdrew funds⁵⁹ promised to the Southside as punishment for its opposition to the county's plans (2006).

The POC never received a response from the USEPA regarding its submission⁶⁰. It was ultimately the local elections of 2008 that produced a shift in the political winds. The incoming Onondaga County Executive was familiar with and sympathetic to the POC's cause. Upon taking office, she halted construction of an RTF in the city's Downtown neighborhood and ordered a review of the county's sewer policies (Rubado 2008; Knauss 2010b). In the ensuing months, the county administration abandoned plans to build new RTFs and worked closely with the Partnership for Onondaga Creek,⁶¹ Onondaga Nation, ASLF, NYSDEC, and other local environmental activists to develop a strategy for using a combination of green and gray infrastructure⁶² to mitigate CSOs (Knauss 2010b; Mariani 2008b). In 2009, the ACJ was revised to accommodate the new plan, which calls for the reduction of stormwater runoff through the construction of 50 green infrastructure projects⁶³ including green roofs, rain gardens, tree plantings and an initiative to help homeowners install rain barrels (Knauss 2009a). The resulting lower volumes of combined sewage will be managed by gray infrastructure projects like underground storage and sewer separation (Knauss 2009b; Mariani 2008b). Although the Southside RTF was already completed when these plans were developed, the POC convinced the county⁶⁴ to apply the new approach to the unfinished pipeline intended to deliver CSO effluent to the facility. The pipeline was abandoned in favor of a series of smaller green and gray mitigation solutions. The RTF will consequently operate at half capacity, reducing the need for discharges to the creek (Knauss 2010b; Knauss 2009b).

As the county's green infrastructure program continues to unfold, the POC has remained closely involved by assisting with related public education and outreach initiatives. It pursues

⁵⁹ In the early days of the debate over the RTF, the county offered \$3 million to mitigate the facility's impacts on the Southside community. The funds were to be used for relocating families as well as constructing housing and community amenities (Sieh and Weiner 2000). In 2002, shortly after the federal court ruled that the county had the right to condemn city property for the RTF, county officials announced that they would pay for resident relocation but were withdrawing the offer of funds for community improvements (Pierce 2002; Weiner 2002a). It was not until 2008 that the funds were definitively restored to the community (Mariani 2008a).

⁶⁰ Aggie Lane, Partnership for Onondaga Creek, personal interview by authors, 14 September 2011, Syracuse, NY.

⁶¹ www.onondagacreek.org/history (last accessed 26 September 2011)

⁶² In the context of stormwater runoff management, "grey infrastructure" refers to traditional engineering solutions involving artificial water conveyances and end-of-pipe water treatment technologies. By contrast, green infrastructure reduces impermeable surface area and lowers the quantity of stormwater runoff that enters the sewers in the first place (Podolsky and MacDonald 2008).

⁶³ <http://savetherain.us/about> (last accessed 26 September 2011)

⁶⁴ www.onondagacreek.org/history (last accessed 26 September 2011)

environmental justice by advocating for professional development and hiring of low-income minority residents for green jobs⁶⁵ as well as by providing environmental education and jobs training for Syracuse youth.⁶⁶ Its members remain, in their words, “dedicated to environmental justice and to water quality of Syracuse's waterways, especially Onondaga Creek.”⁶⁷

Discussion

Our aim in the foregoing discussion was to examine both the particular details of the struggles by the Onondaga Nation and the Partnership for Onondaga Creek, as well as to demonstrate the continuities between these struggles. In this section we consider three integrative themes, through which we may gain a better understanding of these struggles over water and justice: (1) the accumulation of rights to water; (2) social conflict; and (3) social mobilization. The first of these themes, *accumulation of rights to water*, is perhaps the least obvious. In water conflicts involving, for example, irrigation or drinking water, the legal or customary rights to water may be unambiguously established, and the accumulation of those rights may be a relatively discrete, if contested, process (see, for instance, Bauer 1997; Boelens 2009; Trawick 2003). Moreover, in cases of irrigation and drinking water, the water itself is a usable, desirable resource. Struggles in these arenas involve contestation over access to water as use value and factor of production. Certainly some version of this holds true for the Onondaga Nation, which is struggling, as evidenced by its land rights action, to recover its longstanding and well-recognized rights to water resources. In this sense, Onondaga Creek and Lake are sources of sustenance and livelihood, and are intimately bound up with spiritual beliefs and cultural history. The Onondagas' rights to fish, hunt, and gather in the lake and creek environments were clearly established by treaty and custom, and widely recognized within the Euro-American community, as established in the historical record. These rights, however, were usurped by Euro-American settlers who sought to use the lake and creek for commercial (and some subsistence) fishing, and as a repository for industrial waste and municipal sewage. These

⁶⁵ On its website, www.onondagacreek.org, the POC defines a “green job” as: “any job that conserves or preserves our natural resources, that restores or revitalizes our environment or that promotes healthy, sustainable living” (www.onondagacreek.org/greenjobs, last accessed 26 September 2011).

⁶⁶ www.onondagacreek.org/issues; www.onondagacreek.org/gi/collab; and www.onondagacreek.org/greenjobs (last accessed 26 September 2011)

⁶⁷ www.onondagacreek.org/about (last accessed 26 September 2011)

practices, together with the draining of wetlands and the diversion of waterways, radically transformed the lake and creek ecosystems, severely diminishing the ability of the Onondagas to continue their traditional fishing, hunting, gathering, and other resource use practices.

The dominant perceptions and use of local water resources by Euro-American residents thus differ fundamentally from those of the Onondaga Nation. Euro-American uses involve less the right to water as a productive resource, than the right to alter aquatic ecosystems and externalize the byproducts of industrial production and urbanization. In short, what Euro-Americans sought was a *de facto* right to pollute. As this case demonstrates, uses such as these necessarily entail the dispossession of rights to water as a productive resource held by other, less powerful social groups.

In the case of the Southside neighborhood and the Partnership for Onondaga Creek, the question of rights is perhaps less clear. Community members have no history of using the creek's waters or the riparian environment for subsistence activities, nor do they have longstanding or widely recognized rights to the water in any conventional sense. As such, neither the discharge of municipal waste into Onondaga Creek, nor the decision to locate the Midland Avenue sewage treatment plant in the community, can be considered to have usurped conventional, subsistence-oriented resource use rights of community members (as is the case with the Onondaga Nation). What *was* compromised, however, was the right of community members to meaningful participation in decision-making processes regarding the siting of the sewage treatment plant. US citizens have no legally guaranteed right to a clean environment.⁶⁸ What US law does provide for, however, is the right to due process in seeking mitigation or redress in cases of pollution. In a broad sense, the POC case involves violations of rights at the most fundamental level in the United States: those codified in the Bill of Rights. POC members directly experienced eviction from their homes with what they considered to be unjust compensation (which, they argue, was a violation of Fifth Amendment protections). To be sure, the evictions proceeded according to a legally established process, and residents were compensated, albeit in many cases far less than they believed their properties to be worth. But when combined with the community's limited ability to participate meaningfully in decisions regarding the use of the water and land around them, including their own homes and property,

⁶⁸ US law does establish standards for air and water quality, bans or regulates the use of certain polluting substances and practices, and provides for various forms of resource conservation. There is, however, no legally guaranteed right to a clean environment *per se*, as exists in some other countries (e.g. Ecuador and Bolivia).

technical adherence to legal process held little meaning for residents, who felt their rights had clearly been violated.⁶⁹ The deep sense of injustice has been magnified over time among community members, many of whom had experienced forcible eviction from the city's 15th ward in the 1960s, to make way for an urban renewal project as well as the construction of a highway and a hospital (Adams 2003). The POC petitioned the USEPA for the redress of grievances, but through a Title VI process that seemed designed to fail. Thus, the rights of the people of the Southside neighborhood to have their voices heard and to participate meaningfully in decisions regarding their community and environment, have been usurped both by the city's failure to install adequate sewage treatment on a city-wide basis, and the county's decision to install a sewage treatment plant in the community. As the POC's experience demonstrates, *de jure* rights to due process may exist, but hold little meaning if *de facto* rights are trumped by opaque political decision-making and economic expediency.

The second and third of our integrative themes, *water conflict* and *social mobilization*, are considerably more straightforward in the cases presented here. For the Onondaga Nation, *conflict* over territorial rights and water resources dates to the late 18th century, as Euro-American settlers began to encroach on the lands of the Haudenosaunee, with the military and political support of the nascent US government. The steady reduction in the Onondagas' territory – to a tiny fraction of their former lands – together with the profound degradation of the lake and creek environments (which includes the extirpation of native fish and other species, as well as acute contamination by heavy metals, PCBs and other chemical contaminants, as well as municipal waste) have provoked the Onondagas to repeatedly seek redress of grievances through engagement with the United States and New York State governments. In addition, they often coordinate with Euro-American organizations such as the Onondaga Environmental Institute,⁷⁰ which does research and advocacy work for the Onondaga Nation, and Neighbors of the Onondaga Nation,⁷¹ which seeks to build cultural understanding among the Euro-American community. Processes of *mobilization* in defense of territorial rights have in recent years included the land rights action, filed in 2005. Through this action, the Onondagas are seeking the State of New York's recognition of treaty violations, and thereby restoration of title to their

⁶⁹ Aggie Lane, Partnership for Onondaga Creek, personal interview by authors, 14 September 2011, Syracuse, NY.

⁷⁰ See www.oei2.org.

⁷¹ See www.peacecouncil.net/NOON/.

ancestral territory, in part to allow them to continue traditional hunting, fishing, agricultural, gathering, and other resource use practices.⁷²

In the case of the Partnership for Onondaga Creek, water *conflict* dates to the 1998 Amended Consent Judgment, which directed Onondaga County to improve water quality in Onondaga Lake. The County's subsequent decision to build a series of satellite sewage plants or 'regional treatment facilities,' and to place one of these in the Southside neighborhood, was the impetus for the POC's organization and subsequent social action. The community's relationship with the County was further strained by latter's obstinate style of engagement: its insistence on employing outdated and chemical-intensive technology, its refusal to consider the POC's suggestion of a below-ground plant as an alternative plan, and its use of compensatory development projects in the neighborhood as a bargaining chip, exposed an autocratic government that cared little for public input and democratic process.⁷³ In the early years of the conflict, *mobilization* took the form of protest marches and pickets, teach-ins and vocal participation in public hearings and planning meetings. The POC was careful to present well-considered alternatives to the County's proposals, most notably an underground waste storage facility that would have had a smaller above ground footprint than the plant that was eventually built, and would not have relied on hazardous chemicals. The POC's focus on alternatives stems from its recognition that a NIMBY ('not in my back yard') strategy alone would have had little chance of success. Moreover, POC members, as residents of the community, were well aware of the problem of water pollution and the need to take remedial action. Thus, the POC recognized the importance of improving sewage treatment and water quality in the creek, and did not attempt to block the County's plans outright. Rather, it sought alternatives that would minimize the social and environmental impact of such measures on the community. When it became clear that the County would not change its original plans, the POC, with the support of local lawyers and activists, filed a complaint with the US Environmental Protection Agency's Office of Civil Rights (under Chapter VI of the 1964 Civil Rights Act), alleging discriminatory bias on the part

⁷² www.onondaganation.org/land/goals.html (last accessed 26 September 2011)

⁷³ The authoritarian style of former Onondaga County Executive Nicholas Pirro, as well as the viability of alternative courses of action, were exposed when Pirro was replaced by fellow Republican Joanne Mahoney in 2008. Upon taking office, Mahoney, who as a member of the county legislature demonstrated more sympathy to the Partnership's concerns than Pirro, quickly halted construction of additional regional treatment facilities. She also oversaw the implementation of green infrastructure projects as an alternative to the high-impact gray infrastructure favored by her predecessor.

of Onondaga County and the New York State Department of Environmental Conservation. Ultimately, this effort failed as well, and the sewage treatment plant was built, though in somewhat revised form as compared to the County's original plan. Impressively, instead of disbanding in the wake of the plant's construction, the POC continued to advocate for alternative CSO mitigation solutions for the Southside, as well for the rest of Syracuse, and the group's efforts helped bring about a dramatic change in county policy. Today, the POC remains active, and is focusing its energies on job training and green infrastructure efforts in the Southside neighborhood and other urban communities. Continued mobilization of this sort is a textbook example of what development sociologist Albert Hirschmann (1988: 7) called the "conservation and mutation of social energy," whereby seeming failure on the part of social movements can in fact result in surprising and unexpected gains, as group members develop leadership and technical skills, build group cohesion, and form lasting relationships with supportive individuals and organizations elsewhere in civil society or the state. This combination of human and social capital often re-surfaces in the form of other projects or activist campaigns, as can be seen in the Partnership's ongoing efforts.

Conclusion

This paper has examined two cases of environmental injustice in the Onondaga Lake watershed in Central New York State. The first case, that of the Onondaga Nation, involves the historical loss of territory and access to water resources that traditionally supported subsistence and other cultural uses, as well as large-scale environmental degradation as a result of industrial and urban development. The second case, that of the Southside neighborhood and the Partnership for Onondaga Creek, involves a decision by the local government to place a sewage treatment facility in the community. While at first glance these cases would appear to be largely unrelated, we have argued that, when viewed at broader spatial and temporal scales of analysis, their social and environmental continuities become apparent. Onondaga Creek, which flows through both the Onondaga Nation and the Southside neighborhood, is far more than a socially neutral waterway. To the extent that it carries sediments from the Tully Valley mudboils and bacteria from the city's ageing sewers, and acts as a corridor for the migration of exotic plants and animals, it is a bearer of historically constituted and deeply uneven social relations of power.

It was the water in Onondaga Lake and Creek, and associated environments, that first attracted Euro-American settlers to the region and that facilitated their movements and the development of their towns, cities, farms and industries. The water in the lake and creek became a repository for the wastes of these activities, and the exercise of the rights of industries and local governments to pollute the water necessarily usurped the rights of the Onondagas and Southside residents (and others) to use the water for sustenance, recreation and other needs. In this sense, Onondaga Creek is a hydro-social system that embodies long histories of domination and social marginalization (cf. Swyngedouw 2004).

Water continues to connect these cases. The rights to due process and just compensation – so compromised on Syracuse’s Southside – were formalized some 220 years ago, even as Euro-Americans followed the waterways from the eastern seaboard westward into Central New York. Euro-American settlement and urbanization radically transformed the watershed’s environment, as well as the Onondaga Nation’s relationship to the lake and creek. The US Constitution, while based on European law, drew inspiration from law of the Haudenosaunee Confederacy. Influential colonial thinkers incorporated key concepts learned from the Haudenosaunee during diplomatic visits they made to the region during the mid- to late-1700s. But just as fraudulent treaties and military campaigns on the part of the US government violated US law and harmed the Onondaga Nation in the 18th century, the POC’s experience two hundred years later illustrates the continued inability of the US to adhere to its own ideals, respect the rights of its own citizens, and treat the environment as a resource to be protected.

Taken together, the cases of the Onondaga Nation and the Partnership for Onondaga Creek demonstrate the multiform social relations and modes of environmental injustice at play in the Onondaga Lake watershed. These involve *distributional injustice* (the US Army Corps of Engineers’ construction of a dam on Onondaga Nation territory; the County’s decision to locate a satellite sewage treatment facility in the Southside neighborhood), *procedural injustice* (New York’s disregard of the US government’s treaties with the Onondaga Nation, and the US government’s repeated failure to provide redress; Onondaga County’s failure to fully involve the Partnership in discussions regarding the sewage treatment plant, and the forcible evictions of Southside residents), and calls for *recognition* (the Onondaga Nation’s land rights action calls explicitly for recognition of ancestral rights to territory and resources; the Partnership demanded to be treated as a legitimate representative of the community in order to participate in planning

and decision making regarding the Southside neighborhood). These cases further exemplify processes of *white privilege* (the long history of racist actions taken by the US government and New York State against the Haudenosaunee and other Native American peoples; a sewage treatment plant was not sited in the largely white and affluent Franklin Square neighborhood to the north of the Southside, despite the fact that it has sewer infrastructure very similar to the Southside⁷⁴). By taking a broader historical and spatial perspective, we also uncover the multi-scalar nature of historical environmental injustices in the watershed, which involve actions by local governments and industries, as well as regional, national and international political economies. The demands of capitalist expansion that provided an impetus for the building of the Erie Canal and successive transportation systems, as well as national and global markets for agricultural goods, salt, manufactures, and chemicals produced in the watershed, had profound and multi-layered effects on its environments and peoples.

The integrative approach to environmental injustice taken here highlights broad and multi-scalar patterns of domination, social conflict, and environmental degradation. Further, it permits analysis of what Swyngedouw (2004) refers to as the power geometries inherent in water development and attendant social struggles. If, as the old aphorism suggests, water runs uphill toward money, then it is toward marginalized populations that pollution flows. Efforts to mobilize against that pollution, by both the Onondaga Nation and the Partnership for Onondaga Creek, have faced numerous setbacks, and will no doubt confront challenges in the future. The Onondaga Nation's land rights action is currently being appealed in response to an initial dismissal by a U.S. federal district court. Following the County's construction of the sewage treatment plant, the Partnership has re-focused its efforts, and now promotes green job training and green infrastructure projects throughout Syracuse. It remains to be seen where these various efforts will lead. Meanwhile, struggles for justice in the Onondaga Lake watershed continue.

⁷⁴ Both the Southside and Franklin Square neighborhoods serve three major sewer trunk lines (POC 2006:5.4.5.14).

Appendix: Acronyms and Abbreviations

ACJ - Amended Consent Judgment

ASLF - Atlantic States Legal Foundation

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

CSO – combined sewer overflow

Metro - Metropolitan Syracuse Wastewater Treatment Plant

NRDAR - Natural Resource Damage Assessment and Restoration

NYSDEC – New York State Department of Environmental Conservation

PCB - polychlorinated biphenyls

POC – Partnership for Onondaga Creek

RTF - regional treatment facility

USEPA – United States Environmental Protection Agency

USGS – United States Geological Survey

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