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Spatial Displacement and Temporal Deferral: Toward an Alternative Explanation of the Apalachicola-Chattahoochee-Flint Basin Water Conflict

Johnny King Alaziz Wong

College of Geosciences, University of South Florida, Tampa, FL, US; jwong@mail.usf.edu

M. Martin Bosman

College of Geosciences, University of South Florida, Tampa, FL, US; bosman@usf.edu

ABSTRACT: The Apalachicola-Chattahoochee-Flint (ACF) River Basin conflict officially began in 1989 and despite ongoing declarations of readiness to seek a negotiated outcome to the conflict, there is still no end in sight. In fact, 2014 marks the 25th anniversary of this conflict. In this paper, we depart from conventional explanations of the crisis and propose an alternative theoretical point of entry to draw attention to the key structural forces driving water accumulation strategies in the basin. In doing so, we turn to David Harvey's theoretical framework of capitalist growth and crisis to present an alternative understanding of the water conflict. By adopting this framework, we will reveal how the most dominant political and economic actor in the conflict, metro-Atlanta, has devised a series of spatial and temporal strategies to delay and displace a resolution while simultaneously using the impasse to entrench its economic and territorial interests to secure as much water as possible from the ACF water basin. The paper emphasises the crisis of capitalism in the form of suburbanisation in metro-Atlanta as the primary context in which the water conflict exists.

KEYWORDS: Water conflicts, capitalism, spatiotemporal fix, switching crisis, accumulation by dispossession, ACF conflict

INTRODUCTION: CONVENTIONAL APPROACHES TO THE ACF WATER CONFLICT

With water conflicts, it's not always about scarcity; it's about power (Ziaad Lunat, cited in Blau, 2012).

While there is an outpouring of research and policy planning about transboundary conflicts over secure and reliable water sources (Wolf, 1995, 1998, 1999; Fesler, 2007; Eidem et al., 2012; Fischhendler and Katz, 2013), there is a remarkable absence of critical scholarship about the longest interstate water conflict in US history, namely, the Apalachicola-Chattahoochee-Flint (ACF) River Basin conflict among the States of Georgia, Florida and Alabama. The bulk of the literature on this conflict (see Lund and Palmer, 1997; Hutch and Hanson, 2001; Taylor and Ryder, 2003; Lipford, 2004; Snowden, 2005; Feldman, 2009) has failed to attend to the underlying capitalist dynamics and spatial interests responsible for the crisis, notably efforts by the most powerful economic and political actor in the conflict, namely metro-Atlanta, to resolve the conflict by displacing it in space and deferring it in time. It is this gap in the water conflict literature which this paper seeks to address. Conventional approaches to transboundary water conflicts like the ACF Basin are represented by Aaron T. Wolf and his colleagues who focus on predicting cross-border water scarcity and identifying specific water basins most at risk

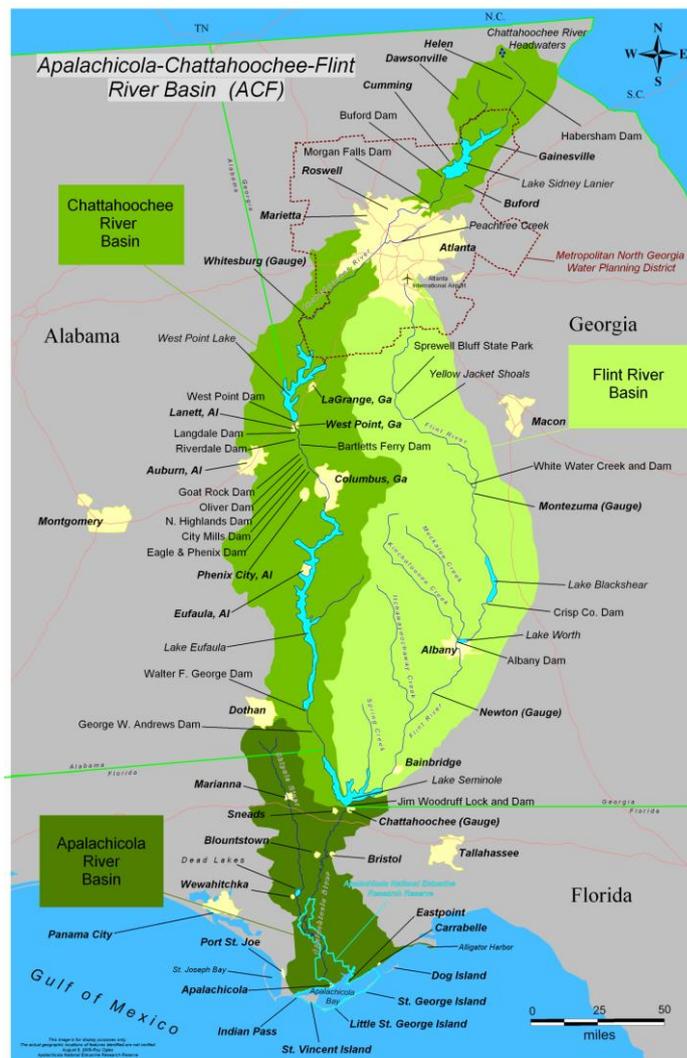
(Wolf et al., 1999; Jordan and Wolf, 2006; Peterson and Wallick, 2006). Others focus on the efficacy of dispute resolution mechanisms with a view to ascertaining how governance, technological innovations, and mitigation efforts might assist in the organisation and management of competition and conflict over water (Sherk, 2005; Dellapenna, 2006). From our perspective, although these studies have helped to raise awareness of present and future water conflicts, for the most part, they have not addressed the proverbial elephant in the room which is driving the conflict over essential natural resources, that is, the system of capitalist urbanisation and its fetish for water-intensive growth through endless territorial expansion and geographical restructuring. In other words, without addressing the 'capitalist' and 'territorial logics' (Harvey, 2003) which are fundamental drivers of urban, regional and global competition for natural resources, these conventional approaches detract attention from what ought to be the highest political and policy priority for scholars and policymakers today, which is to encourage vigorous and frank debate about a political economy which strives to naturalise a culture of limitless capital accumulation and territorial expansion centred around "global city-regions" (Scott, 2001). In this context, we suggest that one way to help develop a critical understanding is to contextualise natural resource conflicts such as the ACF Basin conflict within the structural inability of neoliberal capitalism to organise essential resources on the basis of need and which instead encourages fierce competition among cities, regions and their firms for power and resources.

Against this background, the riparian states of Georgia, Florida and Alabama have been locked in an increasingly 'wicked' (Rittel and Webber, 1973) conflict over the transboundary freshwaters of the ACF River Basin for 25 years now. The trigger if not the cause of the conflict was a massive drought in 1986, which swept across the southeastern US and severely constrained available water supplies in the region. As a result, Georgia, Florida and Alabama would spend the next quarter century lurching between litigating and negotiating their way toward a water-sharing agreement as a way to satisfy their competing territorial and economic interests in the ACF Basin. Despite officials from all three states declaring their readiness to resolve the conflict, the consensus is that very little progress has been made which decidedly favours Georgia's interests. Indeed, it is also clear that due to metro-Atlanta's close proximity to the headwaters of the ACF Basin (Figure 1), the other riparian users are at a distinct disadvantage in protecting their shared water resources, thus committing them to fight for equal access to the basin. Given the current impasse among the competing parties and interests, we think that one of the virtues of a comprehensive theoretical approach based on a fundamental grasp of capitalist growth and crisis tendencies is that it opens up fresh ways of understanding the longevity and chronic failures among the states to resolve a mutual conflict, and also hints at solutions which are commensurate with the scope and scale of the crisis.

Accordingly, we seek to explain the historical geography of the ACF Basin conflict by adapting some of David Harvey's (1982, 2003, 2009b, 2010) theories of capitalist growth and crisis. Specifically, we apply his concepts of 'spatiotemporal fixes' (Harvey 2003, 2009b, 2010), 'crisis switching' (Harvey 1981, 2010), and 'accumulation by dispossession' (Harvey 2003, 2009b, 2010) to our understanding of the conflict. We believe that such an approach which conceptually foregrounds the spatiotemporal dimensions of capitalist growth and crisis not only provides a useful description of the conflict but also connects the conflict to the underlying crisis of capitalist urbanisation which must be confronted if a lasting resolution is to be achieved. The rest of the paper unfolds as follows: Below, we describe both the hydrological and 'hydro-social' (Swyngedouw, 2009; Linton and Budds, 2013) cycles relating to the flow of water from the ACF Basin to the contending states in the conflict. This is followed by a description of the concepts borrowed from Harvey in order to make sense of the particularities of water conflict. Subsequent sections then apply these concepts to shed new light on the conflict in order to highlight what is both general and specific about the conflict and to underscore what it may take to finally resolve the crisis in the interest of all the stakeholders. In this endeavour, we seek to build on the geographical literatures of water conflicts which have adopted roughly similar approaches to the one

we propose here (Bakker, 2002, 2003, 2005; Kaika, 2003, 2006; Loftus, 2006; Swyngedouw, 1995, 2004, 2005; Swyngedouw et al., 2002; Bakker and Cook, 2011).

Figure 1. Apalachicola-Chattahoochee-Flint River Basin watershed.



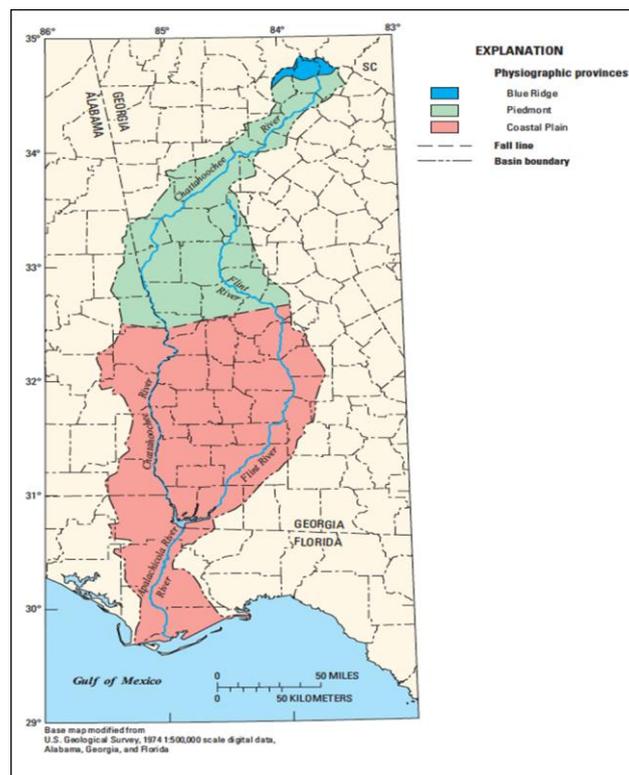
Source: Apalachicola National Estuarine Research Reserve.

HYDROPOLITICAL LANDSCAPE OF THE ACF BASIN

As Figure 2 demonstrates, the watershed of the ACF Basin is separated into three physiographic provinces: (a) Blue Ridge (b) Piedmont and (c) the Coastal Plain. Within the basin, land is divided among four prominent uses: forested and agricultural lands account for 59% and 29% of surface cover in the basin, respectively, while wetland and urban areas account for 5.4% and 5.3%, respectively (Wangsness, 1997). Although nonurban land uses predominate within the basin, the rate of water withdrawals for urban consumption has been increasing steadily since 1970 (Marella and Fanning, 2011). Within the ACF watershed, approximately 1591 million gallons of surface water are consumed each day (mgd), with almost 50% allocated to hydroelectric production. At the same time, 34% or about 609 mgd are allocated to municipal water systems, with the vast majority of that total withdrawn in the Piedmont

physiographic province where the only major water user is metro-Atlanta. Moving south through the watershed, municipal demands in the northern Piedmont province drastically delimit water availability for other uses in the basin. This is due to metro-Atlanta's location at the narrowest point of the watershed, which means that water distributed to suburban commercial and residential real estates must cross hydrographic boundaries before it is delivered to end users. Consequently, about one-third of metro-Atlanta's municipal water supply is lost from the immediate water environment due to evaporation, transpiration, and interbasin transfer into adjacent watersheds, thus registering as 'net consumptive uses' (Metropolitan North Georgia Water Planning District, 2009; US Geological Survey, 2012).

Figure 2. Location of physiographic provinces within the ACF River Basin.



Source: US Geological Survey, 2012.

South of the Piedmont province is the Coastal Plain which is marked by a diverse economy of consumptive uses, including agriculture, thermonuclear energy, and seafood production. Where the Piedmont transitions into the Coastal Plain, the dominant water user is southern Georgia's agricultural economy. Since the late 1980s, an intensely competitive rivalry has developed between Georgia's powerful northern urban-municipal interests in the Piedmont province and southern rural-agricultural interests in the Coastal Plain. This came to a head in 1987 when Georgia's agricultural lobby sponsored House Bill 137, calling for the decentralisation of the Georgia Department of Natural Resources into separate water planning regions (WPRs) across the state (Hallman, 1987). In this context, E. Dunn Jr., a Calhoun County farmer in southern Georgia, voiced a common complaint among some farmers who blame Atlanta for their water woes: "[t]o me, the solution is to leave [water permitting] up to the local counties. I'd like to see the landowner freed from any restrictions from Atlanta" (ibid: 2). This urban-rural tension is exacerbated by the significant degradation of water quality from the point where the Piedmont transitions into the Coastal Plain. The combined effect of suburbanisation and

industrialisation, as well as aging and damaged piping infrastructure, plus point and nonpoint pollution sources, introduce a host of chemical and biological contaminants into the river system through outflow from storm and sanitation systems in metro-Atlanta (Frick et al., 2000). Officials representing Georgia's northern interests reject accusations from the agricultural south for this state of affairs, holding them equally responsible for degrading water quality in the basin. This view is not without some merit as consumption by crop producers, livestock ranches, and poultry production facilities in the south is both immense by volume and poorly regulated (Atlanta Journal Constitution, 2000). The North's view is given additional weight in terms of the difference in water withdrawal permits issued by Georgia's Environmental Protection Division Watershed Protection Branch in 2012: 21,926 permits for agricultural use compared to 776 for all other uses combined (Georgia Water Coalition, 2013). Despite the unevenness of permitting, northern interests are actually allocated a significantly greater volume of surface water than southern interests. In 2011, for example, the Metropolitan North Georgia Water Planning District, which does not include DeKalb County, estimated its urban-municipal withdrawals from the Chattahoochee River to be 515 mgd (Metropolitan North Georgia Water Planning District, 2011). Meanwhile, in the same year, the Upper Flint and Lower Flint Ochlockonee WPRs, which manage agricultural withdrawals from the Chattahoochee River, estimated withdrawals to be 437 mgd (Hook 2010). This suggests that while the South requires more water than the North, its principal supply is groundwater from the Cretaceous, Clayton, Claiborne and Floridan aquifers rather than surface water from the Chattahoochee and Flint Rivers (Marella and Fanning, 2011: 10-11).

In Florida, freshwater from the Apalachicola River flows directly into the Apalachicola Bay estuary, where it offers critical support to a lucrative commercial and recreational fishing industry (Glennon, 2002). For Apalachicola Bay's fishing industry, oysters are one of the most significant and profitable species, yet are also extremely sensitive to minor ecological changes. It is this sensitivity of oysters and estuarine species which became a major reason behind Florida's insistence on an equitable water allocation formula in the ACF Basin based on historical water flows. Georgia's proposals to allow minimum streamflows to Florida were not sufficient to sustain the ecosystem due to unpredictable salinity balance and the introduction of salt water predators into a sensitive ecosystem (Liu and Acker, 2010). This is how a Florida water manager described the state's need for periodic inundations in order to sustain the riverine ecology:

The system, both the riverine and the estuarine system ... have historically operated in a very dynamic way and they require a great deal of variation. It doesn't have always to be the average flow in the river – we'd like to see large floods and small floods. You don't wanna see a stabilised minimum flow [because it] is harmful to the whole system. This is an alluvial river system and an alluvial river system is one that is characterised by periodic flooding ... It doesn't have to flood the entire floodplain every year, but if it does that every four years or six years or something like that, then that's enough to maintain the system (Interview, February 1, 2013; brackets added).

At the time of this interview, the estuary was receiving a continuous flow of approximately 5000 cubic feet per second (cfs), or 3200 mgd, according to this water manager. Due to drought conditions, however, a much greater streamflow of approximately 9700 mgd, a figure dwarfing the 1591 mgd produced in the ACF for all other purposes, needed to be sustained for several consecutive weeks in order for Apalachicola Bay's salinity levels to finally stabilise and recover. In addition to worries about its commercial and recreational fishing economy, Florida development officials continue to express concerns about "losing the water source it need[s] for the potential future residential and commercial development of thousands of pulp wood forests in the panhandle" (Hardy, 2011: 259).

From Alabama's perspective, its economy has suffered due to metro-Atlanta's water withdrawals and its insistence on priority of access to water from the ACF Basin. In a 1990 lawsuit filed against the US Army Corps of Engineers (USACE), Alabama alleged that increasing Atlanta's water withdrawals would sacrifice "badly needed economic development" in the state (Williams, 1991). Alabama officials

felt that the prospect of limited water supplies would undermine their plans to reverse years of economic stagnation (Elisinger, 1995). The fact that Alabama has continued to experience economic and population growth throughout the 25 year conflict underscores its concern for a secure source of water from the ACF Basin, even though a 2013 Alabama Water Agencies Work Group informed Governor Robert Bentley that "Alabama has adequate water resources at the present time". Despite this claim, state officials continue to express concern about Georgia sharing the waters of the Chattahoochee River and worry that the ACF conflict is "exacerbating potential water quantity and quality problems [and] increasing uncertainty about water availability [in the state]" (Alabama Water Agencies Work Group, 2013: 13). Thus, although Alabama seems to possess enough water for the time being, the ACF conflict has the potential to disrupt the state's future economic development plans in the industrial manufacturing and engineering technology sectors.

As part of the 2011 'Accelerate Alabama' economic development plan, the state is actively recruiting firms in steel processing and fabrication. It is also pursuing aerospace, automotive, electrical and precision machinery which are all industries which would require access to cheap sources of electricity (Alabama Economic Development Alliance, 2012). This might explain why the Joseph M. Farley nuclear power plant near Dothan, Alabama, has featured so prominently in the ACF compact negotiations and litigation. With two pressurised water reactors, the Farley plant has a production capacity of 1776 megawatts (MW) and generates nearly 20% of Alabama's total electricity supply (Alabama Power, 2010). In order to cool spent nuclear fuel cells, the plant's supply pumps circulate water through six cooling towers which require a streamflow of approximately 2000 cfs. In other words, a secure and readily available source of water is critical to Alabama's future economic and territorial interests (Signatory States, 2003; USACE, 2008). According to a high-ranking water manager from Alabama:

We are looking for opportunities for economic growth in Alabama, for the state, like anybody else. Of course, we want to be able to look at that in terms of what the potential might be ... and evaluate the terms of the availability [of freshwater], as well. We have industries and municipalities [which need] power supply on the Chattahoochee, as well. It's an area that is important from Alabama's standpoint: from the water supply standpoint, from the waste assimilation standpoint, Farley nuclear plant ... is a central, a significant part of the Southern power grid, as well (Personal Interview, 31 January 2013; brackets added).

SPATIOTEMPORAL FIXES, SWITCHING CRISES AND ACCUMULATION BY DISPOSSESSION

As suggested in the introduction to this paper, in order to supplement conventional explanations of the ACF water conflict, we offer a conceptual approach rooted in a fundamental understanding of capitalist growth and crises, including the imperatives of urban and interstate competition and the inevitable conflict over natural resources. To that end, the theories of Harvey (2001, 2003, 2007, 2009a, 2009b) and, to a lesser extent, of Giovanni Arrighi (1978, 2004), provide not only a geographical description of the conflict, but also connect the source of the conflict to the crisis of capitalist urbanisation, notably the interrelated systemic imperatives for endless geoeconomic expansion and sociospatial reorganisation which would then turn a city like Atlanta into the global city-region of 'metro-Atlanta'. In his theorisation of capitalism's inherent growth-related contradictions and conflicts, Harvey argues that there are multiple barriers to capital flows capable of triggering a full-blown crisis. Accordingly, it is helpful to think of the (trans)formation of crises in terms of barriers, which can either retard or disrupt the 'creative destructive' dynamics of endless capital accumulation and geographical expansion. It is also helpful to recognise that crisis barriers may be multifold. Harvey's argument implies that due to the overwhelming logistical power of capitalist interests, they invariably develop novel strategies to evade virtually all barriers which threaten to obstruct capital flows and territorial expansion. At the same time, every ostensible 'fix' adopted to nullify actual and potential barriers generates new barriers to overcome, *ad infinitum*.

A key strategy for evading and/or overcoming the barriers generated by capitalist growth and crisis is what Harvey (2003) refers to as the 'spatiotemporal fix'. The notion of a 'fix' has dual meanings, as in:

A certain portion of the total capital is literally fixed in some physical form for a relatively long period of time (depending on its economic and physical lifetime). There is a sense in which social expenditures also become territorialised and rendered geographically immobile through state commitments ... Some fixed capital is geographically mobile ... but the rest is fixed in the land that it cannot be moved without being destroyed ... The spatio-temporal 'fix', on the other hand, is a metaphor for solutions to capitalist crises through temporal deferment and geographical expansion ... At each step, of course, the issue arises as to which will be the next space into which capital can profitably flow and why and which will be the next space to be abandoned and devalued...this option cannot be divorced from temporal shifts in which surplus capital gets [deferred] into long-term projects that take many years to return their value to circulation through the productive activity they support (Harvey, 2003: 88; 113; 2009b: 64; 2014: 154).

Geographical expansion and temporal deferral represent fixes to one or another barrier to capital accumulation. As a result of this structural tendency, processes, institutions, and policies facilitating capital flows generate as much competition and conflict as they generate growth and development. The rate of production and incorporation of new spaces (Smith, 1984; Lefebvre, 1991), including ecological spaces and their intrinsic resources (Foster, 2000), under a particular regime of accumulation may overcome a crisis in two ways. First, the production and/or appropriation of new spaces may allow for temporary resolutions to crises via the relatively unfettered utilisation of social and physical resources intrinsic to new or incorporated spaces. Second, once new spaces are fully "territorialised and rendered geographically immobile through state commitments" (Harvey, 2009b: 64), they can be capacitated to restart the motors of capital accumulation and thereby accelerate the production of additional economic space.

The figurative meaning of spatiotemporal fixes as solutions to crises can and does enter into sharp contradiction with the actual material meaning of the concept. The recurrent and contradictory tendencies of geographical expansion, reorganisation and reconstruction which represent the essence of the production of space and act as the flywheel of capital accumulation "threaten values fixed in place but not yet realised" (Harvey, 2009b: 66). Consequently:

Vast quantities of capital fixed in place act as a drag upon the search for a spatial fix elsewhere ... If capital does move out, it leaves behind it a trail of devastation ... If overaccumulated capital does not or cannot move, on the other hand, then it stands to be devalued directly (Harvey, 2003: 116; 2009b: 66).

However, spatial fixes are key parts of the inherent crisis and conflict dynamics of capital flows from one space to another, generating conflicts which in turn militate against efforts to build sociospatial coherence and cooperation around the production and consumption of essential and shared biophysical resources. At the same time, in the face of an interurban or interstate competition and conflict, redirecting capital flows and generating accumulation elsewhere are far from simple (Harvey, 1982, 2003). A resolution can either occur deftly, which is not likely, or it can occur via a "crisis switching" (Harvey, 1982: 428-9; 2003: 121-3). This simply means:

The more capitalism develops, the more it tends to succumb to the forces making for geographical inertia. The circulation of capital is increasingly imprisoned within immobile physical and social infrastructures which are crafted to support certain kinds of production ... Increasing quantities of fixed capital (...) check uninhibited mobility (...) Territorial alliances, which often become increasingly powerful and more deeply entrenched, arise (...) to conserve privileges already won, to sustain investments already made, to keep a local compromise intact, and to protect itself from the chill winds of spatial competition (Harvey, 1982: 428-9).

This brings us to the final concept we consider useful for an alternative understanding of the ACF Basin water conflict, namely, 'accumulation by dispossession'. Harvey (2003: 134-6) regards this concept as

the "sinister and destructive side of spatiotemporal fixes", because it involves "accumulation by other means". He writes:

What accumulation by dispossession does is to release a set of assets [water] at very low (and in some instances zero) cost. Overaccumulated capital can seize hold of such assets and immediately turn them to profitable use (ibid: 149; brackets added).

In this context, Arrighi (2004: 531) offers some useful insights to bear upon our explanation of the ACF water conflict:

Accumulation by dispossession is only in part a substitute for spatial fixes to overaccumulation crises (...) a spatial fix, that is, that expands the geographical scope of the system of accumulation through the forcible or fraudulent appropriation of something for nothing, rather than through the exchange of nominally equivalent values.

It should hopefully be clear by now why the approach which we are proposing here sheds new light on the ACF water conflict. Somewhat similar approaches to the one we are proposing here have already been applied to water conflicts elsewhere. For example, several environmental geographers (Bakker, 2002, 2003, 2005; Bakker and Cook, 2011; Kaika, 2003, 2006; Loftus, 2006; Swyngedouw, 1995, 2004, 2005; Swyngedouw et al., 2002) have taken parts of Harvey's theorisation of capitalist crisis to explain the increasingly contentious and mutually constitutive relationships among economic competition, water conflict, and the (re)production of spatiotemporal fixes in various parts of the world. See Loftus (2005, 2006) and Kaika (2003, 2004, 2006) for specific examples of how geo-engineered water flows protect a vast landscape of 'overaccumulated' and 'immobile physical and social infrastructures'.

In the following sections, we intend to show how the dual meanings of a spatiotemporal fix might be applied to the ACF conflict, specifically in relation to metro-Atlanta. For example, as part of the city's plan in the 1980s to shift from a manufacturing to service economy, public and private investors fixed capital into new suburban residential housing, commercial, and shopping spaces. This spatial fix then necessitated a second spatiotemporal fix represented by securing massive and regular quantities of freshwater to prevent economic losses over time through land and real estate devaluation. Various efforts to manage the water crisis generated by the "most land-consuming metropolitan area" (American Rivers et al., 2002: 7-8) in the US, especially in an area prone to regular and severe drought cycles (Germany et al., 2008), all but necessitated a 'switching crisis' which in turn caused a serious water conflict with Florida and Alabama. Thus, in order to 'fix' its sprawl-induced water crisis, northern Georgia's land development and real estate interests sought to 'dispossess' northern Florida, southeast Alabama, as well as southern Georgia of their respective rights to the ACF Basin.

THE RISE OF METRO-ATLANTA

While studies of the ACF conflict commonly trace its origins to the drought of 1986 (Erhardt, 1992; Stephenson, 2000; O'Day et al., 2009), as we have suggested above, the conflict has deeper, systemic roots. With a modest population of only 11,000 residents at the beginning of the US Civil War (1861), but nourished by an excellent heavy railway infrastructure, Atlanta swiftly became Georgia's largest economic region by 1895, overtaking the historic port city of Savannah and the bustling manufacturing centres of Augusta, Macon, and Columbus. A large city by the standards of the US South, Atlanta's population surpassed 100,000 by the early 20th century. Over the course of the next 50 years, it cemented its reputation as a premier destination for capital flows from the northeastern US (Hartshorn and Ihlanfeldt, 2000).

By the 1950s, Atlanta had consolidated its reputation as a leading industrial centre in the US South, if only for nondurable goods. At the same time, many of the older southern industrial centres, such as Birmingham, Alabama, experienced steep declines in production as a result of shifting national policies

and priorities, prompted by increasingly fierce international competition (Wright, 1987). Federal policies to standardise wages and labour conditions also increased competition within and between the US North and South, thus contributing to the out-migration of some workers, especially young African Americans, who comprised the majority of the labour force in regional industries such as lumberyards, steel, and sawmills (Cogan, 1982). Despite the shift toward national wage and labour standards which triggered relative declines in labour-intensive industries in the South (Van Sickle, 1943), Atlanta continued to experience steady economic growth, slowly closing the per capita income gap between the North and South (Wright, 1987).

During World War II, whereas market conditions were volatile across the national economy, southern economic growth remained notably strong. Between its endowment of oil and natural gas refineries, weak labour unions, and a *laissez-faire* culture vis-à-vis economic deregulation, on the one hand, and a federal policy of "military Keynesianism" (Malecki, 1984; Markusen 1985; Wright, 1987; Cypher, 2007; Custers, 2010), on the other, the South and the Southwest (Warf, 1994) turned into powerful economic regions. Regardless of federal initiatives to modernise the South (Whitelegg, 2000), the entrepreneurial drive and determination of southern "power elites" (Mills, 1956) to catch up with the Northeast should also not be ignored in accounts of Atlanta's explosive growth toward becoming a leading industrial and commercial centre in the US space economy. Thus, in the immediate wake of World War II, Atlanta's power elite launched a number of ambitious plans to modernise the city by shifting from its heavy dependence on defence manufacturing and 'heavy' industries to 'soft' services. In doing so, they launched a regional development programme to redirect capital flows from manufacturing to land, particularly residential and commercial real estate development (Stone, 1989).

A major elite goal was to expand Atlanta's space economy by investing in large infrastructural projects which could act as long-term capital sinks. A good example was two interrelated capital accumulation projects, doubling as spatiotemporal fixes, namely, the *Highway and Transportation Plan for Atlanta, Georgia (1946)* and the *Plan for Improvement (1952)*. The idea behind these two plans was to transform the entire Atlanta region into a massive semi-borderless "space of flows" (Castells, 2010), as shown in Figure 3. The political economic justification was that these projects would provide future benefits to investors by way of "long lag times between investment and payoffs" (Sheppard, 2004: 472). Thus, in a manner compatible with Harvey's concept of spatiotemporal fixes, these twin projects of urban reorganisation and metropolitan expansion became Atlanta's answer to its surplus capital problem and surplus population challenges. This is what H.W. Lochner, a reputable transportation consultant hired to design Atlanta's new expressway system, wrote in his 1946 report to its city government:

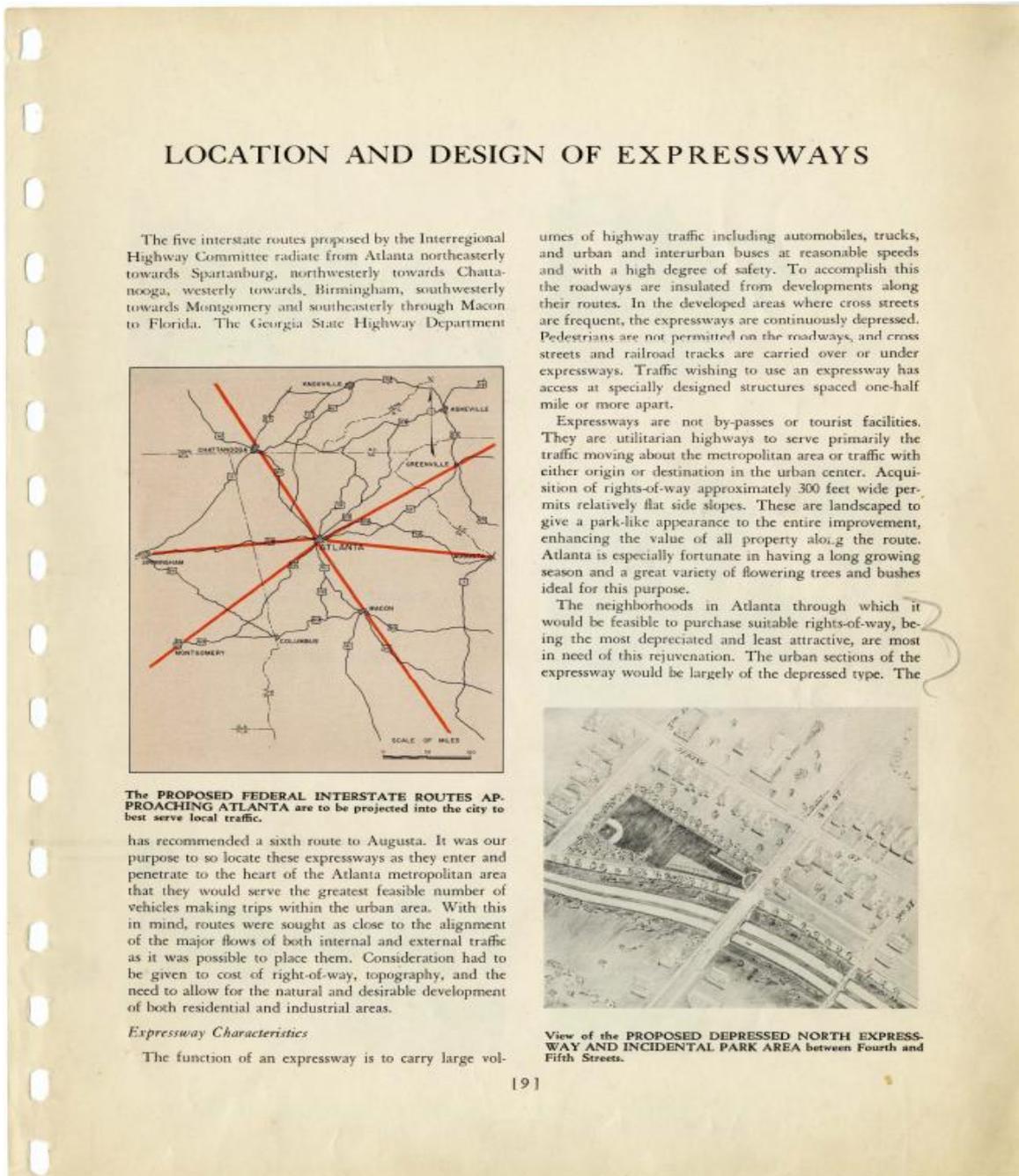
There is every indication that Atlanta is approaching a period of great growth and prosperity. Improved highway and transit facilities are essential if the community is to capitalise on its natural assets. Failure to take prompt action would not only retard growth but add to the overall cost of the capital improvements required (H.W. Lochner & Company, 1946: XI).

Shortly after construction of the expressway system was completed, Atlanta officials adopted the *1952 Plan for Improvement* as the second phase of urban expansion. Accordingly, a series of activities resulted in the expansion of Atlanta's northern city limits to include the majority white, affluent neighbourhood of Buckhead (Whitelegg, 2002) which is now home to many of the city's most iconic buildings and infrastructures including several convention centres and arenas, the famous Lenox Square shopping complex, Peachtree Road, and the Governor's mansion (Atlanta Convention & Visitors Bureau, 2013).

With the annexation of Buckhead complete, Atlanta's space economy tripled in size from 60 to 190 km², adding about 100,000 new residents and bringing the total population to 430,000 by 1952 (Whitelegg, 2002). The construction of the expressway, the expansion of the city limits, and the massive influx of World War II soldiers which was facilitated by the "prevailing *laissez-faire* market economy-

driven approach to growth" (Hartshorn and Ihlanfeldt, 2000: 17) led to one of the most spectacular suburban explosions in US history. Thus, from 1960 to 1970, Atlanta, which by now had become metro-Atlanta, added 450,000 new residents, amounting to a population increase of 34% in just 10 years (Social Science Data Analysis Network, 2000), earning the city-region the rank of 20th most populous region in the US (US Department of Commerce, 1982).

Figure 3: Location and design of expressways as projected in the 1946 Highway and Transportation Plan for Atlanta, Georgia.



Source: 1946 Highway and Transportation Plan for Atlanta, Georgia ("Lochner Report"), State Highway Department of Georgia.

Atlanta's astonishing expansion transformed it into a sprawling global city-region of nearly 6 million people by 2013 (US Census Bureau, 2013). By 2014, some metro-Atlanta agencies were boasting that the city-region "has more residents than 24 states" (Metro Atlanta Council for Quality Growth, 2014). However, this rapid and relentless expansion of Atlanta's space economy into surrounding unincorporated suburbs and exurbs generated a host of challenges within and beyond the city. As early as 1940, well before the city's power elite launched its ambitious accumulation projects, water managers warned that economic growth and territorial expansion would one day bump up against the barrier of "inconsistent water supply" (Atlanta Journal Constitution, 1940). Indeed, water had already become an issue for Atlanta's earliest southern suburbs in the form of "insufficient water pressure and inadequate supply during dry spells" (ibid). Feldman (2009) mentions several reasons why metro-Atlanta's water supply was particularly prone to periodic water shortages, despite the historical attitudes about precipitation being plentiful in the region. First, the aquifer structure of the Piedmont physiographic province significantly limits groundwater yield, forcing the region to capture 98% of its water supply from surface water. Second, Atlanta's location near the mountainous Blue Ridge Province means that streamflow volume fluctuates widely because of high rates of run-off from snowmelt (US Geological Survey, 1995). Finally, metro-Atlanta lacks the infrastructure required to economically impound water in reservoirs (American Rivers et al., 2002: 2). Cost estimates show that tributary reservoirs would require extensive treatment systems to pump and store the water (Cowie and David, 2002). In 2013, Governor Nathan Deal allocated \$40 million to start the construction of three reservoir projects in north Georgia, as well as \$5 million to conduct a feasibility study on a desalination project off the coast (Bluestein, 2013). In summary, notwithstanding early signs of trouble and repeated warnings from some of the city water bureaucrats, Atlanta's relentless sprawl has continued and in the process has spawned new barriers to growth and expansion which now threaten to disrupt and limit, if not altogether slow down the city's space economy as suggested by Harvey (1982, 2003).

THE DROUGHT OF 1986: THE ORIGIN, NOT THE CAUSE, OF THE ACF BASIN CONFLICT

A formidable hydro-physical barrier to Atlanta's upward trajectory of capital accumulation and territorial expansion emerged in the form of severe water scarcity in the late 1980s. The 1986 drought was so acute that meteorologists distinguished it as a 100-year drought, meaning that the recurrence interval for such an event is estimated to be between 100 and 200 years (Cook et al., 1988). In 1989, as part of an effort to plan for the negative impacts of future droughts in metro-Atlanta, the United States Army Corps of Engineers (USACE) contracted with the city's northern suburbs to repurpose a portion of Lake Lanier's storage capacity from hydroelectric production to municipal water supply (Jordan, 2006). But, in order to affect this change to Lanier, which lies northeast of Atlanta and functions as its single largest water supply, hydroelectric power generation at the nearby Buford Dam had to be reduced to maintain the metropole's water demand. It was this decision by USACE which roiled relations with Florida and Alabama, triggering the current conflict over the waters of the ACF Basin.

In 1990, Alabama filed a lawsuit against USACE, alleging that an increase in metro-Atlanta's water withdrawals from Lake Lanier would result in heavy economic losses to its agricultural sector, industrial mining operations, recreational and forestry industries, as well as limit the state's ability to generate electricity and modernise its eastern corridor (Williams, 1991). Shortly thereafter, Florida joined Alabama's lawsuit, alleging that increased water withdrawals upstream would increase the salinity of the water flowing into Apalachicola Bay, causing one of the most biodiverse ecosystems in the US (Nature Conservancy, 2004) to suffer inadequate stream flows. These conditions, in turn, would disrupt the sensitive estuarine ecology of the bay and threaten the state's lucrative oyster industry (Beaverstock, 1998). An example of how volatile the situation has become came in the form of a 2014 news report that Florida's Fish and Wildlife Conservation Commission considered shutting down oyster harvesting during the busy fall season, because "the oyster population ... has been impacted by a

reduction of water coming out of Georgia ... Apalachicola Bay might be shut down to oyster harvesting ... which could affect thousands of jobs" (Alderstein, 2014). According to several news reports from the Bay, the fishermen were so incensed by this development that they turned on their own association president, accusing him of timidity in the face of a crisis to their livelihoods.

Decisions to either sacrifice hydroelectric power generation in Alabama or oyster farming in Florida, among other competing water uses, on the altar of a property-led accumulation strategy in Atlanta's booming northern suburbs point to a temporary fix to the water crisis. But, this fix has generated a daunting new barrier in the form of an increasingly contentious standoff with downstream riparian states, as well as agricultural interests in rural southern Georgia. In other words, to paraphrase Harvey (1982, 2003), metro-Atlanta has not fixed its water crisis; it has simply moved it around in space and pushed it into the future. Thus, in an effort to create space and time to 'fix' the crisis, Atlanta's elites have tried to claim privileged access to and use of the waters of the ACF Basin with little concern for the economic and ecological tolls imposed upon downstream users. This beggar-thy-neighbour attitude has added an additional sharpness to the conflict between the various competing stakeholders to the ACF Basin.

COMPACT NEGOTIATIONS AS SPATIOTEMPORAL STRATEGY

In January 1992, three years after the drought triggered the start of the ACF Basin conflict, representatives from Georgia, Florida, and Alabama met to negotiate a reasonable water allocation formula (Teegardin, 1991). To that end, they agreed to negotiate a fair water-sharing agreement based on the hydrological findings and policy recommendations of a USACE Comprehensive Study (Yardley, 1992). The agreement stipulated that the Comprehensive Study would be completed by 1995; however, a succession of delays ensued causing the study to be not completed on time (Seabrook, 1996). By December 1996, state negotiators had grown weary waiting for the results of the Comprehensive Study. As a result, they signed a new agreement, opting for direct compact negotiations *sans* USACE. The agency would only be consulted if or when its technical and scientific expertise was required.

By the end of 1997, the US Congress ratified this new agreement empowering the states to seek a regional agreement vis-à-vis an interstate allocation mechanism. The assumption was that the act of spatially rescaling the negotiations would help to catalyse a resolution (Seabrook, 1997). As before, however, negotiations were marred by delays, missed deadlines and endless time extensions. It was then that stakeholders from Florida and Alabama began accusing Georgia officials of acting unreasonably. In 2006, Alabama's Attorney General, Troy King, became the first party to an otherwise secretive process to accuse Georgia officials of negotiating in "bad faith" (Associated Press, 2006). While King was the first state official to make this accusation publicly, others let it be known that the negotiations had been riddled with problems from the very start. In a personal interview, one mediator to the negotiations voiced this complaint:

Another mistake they had made was appointing [Lindsey Thomas, as mediator to the negotiations]. Don't you think he had a little bit of a vested interest? I always kind of scratched my head and said, 'Why would you bring that?'...You need somebody who is good in mediation, you need an arbitrator, you need a facilitator, somebody from another part of the country who doesn't have a vested interest and who can keep things moving on. And this guy was, again, a Head of the Georgia Chamber of Commerce. Watching him, I didn't think he really had a vested interest to see anything really happen (Personal interview, 19 September 2013; brackets added).

The apparent conflict-of-interest surrounding Thomas's appointment was not the only issue roiling the negotiations. Having collectively decided in 1996 to proceed with negotiations *sans* USACE's Comprehensive Study, the three states were free to use their own software models to forecast water supply and demand estimates. According to personal interviews with key stakeholders, officials from

Florida and Alabama felt that Georgia abused this freedom as a negotiating tactic (Wong, 2014). A party to the negotiations recalled an instance when Georgia officials submitted a water allocation proposal based on a hydrological model which, according to Florida and Alabama officials, they should have known was patently flawed. However, they remained silent, fearing that accusing Georgia of using stalling tactics would jeopardise the negotiation process:

You never got to say, when Georgia would put out a proposal on the table, and they do their modelling and it was a bunch of crap ... You never got to say, 'this is really bullshit' ... If we were negotiating away somewhere, you'd kind of be able to be a little more direct and say, 'Guys, look, we gotta get some give and take here. Let's come up with some alternative that will benefit, you know, let's come up with a consensus so everybody could just walk away and say, 'Yeah, we didn't get everything we wanted' ... But, because nobody is willing to do that in public, that was one of the major issues (Personal interview, 19 September 2013).

Finally, by 2008, after 11 years of failed negotiations, the states changed course once more by resorting to litigation as their last hope to resolve the conflict.

LITIGATING A RESOLUTION TO THE CONFLICT

As the prospects of obtaining a negotiated resolution to the conflict dimmed, the states returned to the judicial system for a blunt legal resolution. But, as the following section will show, returning to the politics of legal adversarialism would prove to be equally troublesome and protracted. At any rate, eight separate lawsuits dealing with the allocation of the ACF Basin were scheduled for court hearings (Rankin, 2009; Atlanta Regional Commission, 2013). Since the lawsuits were linked, the Judicial Panel on Multidistrict Litigation (MDL) consolidated them to simplify litigation. Paul Magnuson, a Senior US District Court Judge, was appointed to preside over the consolidated case. At the time, Magnuson was praised as a prudent choice to preside over the case for several reasons. He was not only a district court judge from Minnesota, a neutral state in the conflict, but was also handpicked by the MDL and appointed to the bench of the Middle District Court of Florida based on his experience in ruling on transboundary water disputes in the Missouri River between 2003 and 2008 (Lambrecht, 2005; Appel, 2007). Indeed, Magnuson wasted no time living up to his reputation as a judge who "calls it like he sees it" (District Judge Richard Kyle, cited in Lambrecht, 2005: 2). In a pretrial meeting with the contending parties, he ordered them to speak plainly and candidly, but warned that unnecessary accusations against one another would only delay a resolution to the conflict. As the quote below indicates, Magnuson resisted attempts by Georgia officials to adopt the same temporal tactics which had forced the negotiations back into the legal system. Thus, he was blunt in his rebuke of the state's lawyers who sought to defer a final ruling by filing court motions to delay, if not end, the litigation. These were Magnuson's words:

No party's position is advanced by the type of slash-and-burn litigation tactics evidenced by these multiple motions ... perhaps more importantly, the interests of the respective clients ... are harmed by the voluminous paperwork and at times vitriolic argument submitted to the court (cited in Lambrecht, 2005: 2-3).

A year later, in July 2009, Magnuson finally issued his highly anticipated ruling which reverberated across the three states. Dismissing Georgia's claim that the 1945 and 1946 Rivers and Harbors Acts (RHAs), which authorised the construction of Buford Dam and Lake Lanier, entitled Atlanta to withdraw water from the ACF Basin as its water supply, he ruled in favour of Florida and Alabama by finding that metro-Atlanta's municipal water supply was not authorised by the RHAs. Based on a careful interpretation of both the intent and the text of the authorising legislation, Magnuson found that the 79th US Congress intended for Buford Dam and Lake Lanier to provide hydroelectric power, barge navigation, and flood control. He also found that while Congress recognised that metro-Atlanta would

undoubtedly receive a municipal water supply, such a benefit would only be *incidental* to the generation of hydroelectric power (Middle District Court of Florida, 2009). Florida and Alabama officials and other stakeholders hailed the final ruling that metro-Atlanta was no longer entitled to "seize hold of such assets [water] and immediately turn them to profitable use", to borrow from Harvey (2003: 149; brackets added).

Judge Magnuson further ruled that by 2012, USACE had to either secure congressional approval to reallocate storage in Lake Lanier for Atlanta's municipal water needs, or the conflict would be subjected to a fresh round of negotiations. Meanwhile, unless and until one of these two conditions was satisfied, metro-Atlanta had no legal claims to the waters of the ACF system. In other words, as Arrighi (2004: 531; brackets added) might have argued, metro-Atlanta was no longer entitled to "expand the geographical scope of [its] system of accumulation through the forcible or fraudulent appropriation of something for nothing, rather than through the exchange of nominally equivalent values". To underscore his ruling, Magnuson gave metro-Atlanta three years from the date of his ruling to comply with one of the above conditions. With a three-year deadline looming and metro-Atlanta's hydro-supremacy over the transboundary waters of the ACF Basin declared illegal for the first time, its territorial alliances and growth coalitions sprang into action to protect the vast geoeconomic benefits already attained, guarantee capital investments already in the pipeline, and shield their considerable interests and assets against greater claims to the transboundary water flows of the ACF. Given this change of hydrological fortunes, Atlanta's power elite went on the offensive, publicly maligning Magnuson's ruling. In 2009, for instance, then-Chairman of the Atlanta Regional Commission, Sam Olens, levelled the following accusation:

Let's be clear about the [Magnuson] ruling ... His ruling is based on a very narrow interpretation of the law that authorised the [Buford] Dam in 1946 ... The judge's ruling, if allowed to stand, would have devastating consequences for our region. Returning the Dam to baseline operations of the mid-1970s is unconscionable.

The then-Director of the Atlanta Regional Commission, Charles Krautler (2009), spoke directly to the economic consequences of the judge's ruling:

[T]he southeast has emerged as a new economic centre for automobile assembly in the country ... In a global economy, the mega-region has replaced the metropolitan region as the appropriate economic unit of scale. From this perspective, Judge Magnuson's ruling places the region that stretches from Birmingham to Charlotte and beyond in harm's way.

In light of these remarks by two of metro-Atlanta's senior power brokers, it is reasonable to argue that one of the greatest anxieties among the city-region's economic and political elites in the wake of Magnuson's ruling involved the "social expenditures [which had] become territorialised and rendered geographically immobile through state commitments" (Harvey, 2003: 113; Harvey, 2009b: 64), on the one hand. Evidence shows that elite anxieties were also linked to concerns about the status of "overaccumulated capital [which] it does not or cannot move ... [thus] stands to be devalued directly" (Harvey, 2003: 116; 2009b: 66), on the other hand. In a nutshell, Magnuson's ruling represented a systemic threat to metro-Atlanta's macroeconomic growth model and thus, would bear tremendous negative consequences if not overturned.

Then-Governor of Georgia, Sonny Perdue, declaimed the judge's ruling in the strongest possible terms while publicly insisting: "Lake Lanier is absolutely our best option [for municipal water] ... it is economically and environmentally the best option" (Redmon, 2009). Speaking directly on behalf of metro-Atlanta's ever-expanding volumes of fixed investments and capital flows, then-Senior Assistant Attorney for the City of Atlanta, Marc Goncher, addressed what was at stake: the "draconian ruling would pour sand in the gears of the economic engine of the Southeast" (Goncher, 2012: 1), presumably by requiring metro-Atlanta to finally pay for the massive quantities of water it was using to sustain its

policy of horizontal growth (H.W. Lochner & Company, 1946; Rodgers, 1957; Thompson et al., 1960; Stone, 1989). Thus, instead of complying with Magnuson's ruling that metro-Atlanta resolve the conflict legislatively, or return to compact negotiations with Florida and Alabama, or find alternative water sources, metropolitan and state leaders decided to challenge the ruling in the US Court of Appeals for the Eleventh Circuit in 2011.

Highlighting the increasingly "wicked" nature of the conflict, the Appellate Court overturned Magnuson's ruling by finding that municipal water supply *is* a congressionally authorized purpose of Buford Dam and the ACF Basin. The Appellate Court conceded, however, that the 1945 and 1946 RHAs monetized the potential benefits flowing from the construction of Buford Dam, among which municipal water supply was not listed (US Court of Appeals for the Eleventh Circuit, 2011). Recall that in 2009, Judge Magnuson ruled that municipal water supply was not a "principal direct benefit" of the Buford Dam. The Appellate Court explained away this legislative contradiction as a congressional misspecification, arguing that in 1945-1946, when the RHA and its amendments were adopted, metro-Atlanta "had no immediate need for increased water supply, though such a future need was 'not improbable'" (ibid: 8). Moreover, according to the Appellate Court, Congress understood municipal water supply to be both an *intentional* and *incidental* benefit of the Buford Dam. This conclusion by the Appellate Court necessitated a redefinition of the term 'incidental'. Thus, declared the court:

In light of the foregoing statutory language, and particularly Congress' intent that the Corps should have authority to accommodate the Atlanta area's water supply needs at the expense of some detriment to 'system power value', we cannot conclude that Congress intended for water supply to be a mere incidental benefit. By definition, one purpose that is to be accomplished to the detriment of another cannot be incidental. Thus (...) Congress intended for water supply to be an authorized, rather than incidental, use of the water stored in Lake Lanier (US Court of Appeals for the Eleventh Circuit, 2011: 57).

The enduring significance of this new ruling was not only that it changed municipal water supply from an incidental benefit to a *bona fide* and primary purpose of Buford Dam, but that it also "handed Georgia an enormous victory in the tri-state water litigation" (Rankin, 2011). As the court ruled:

Congress also clearly indicated that the Buford Project was intended to benefit the Atlanta area's needs by assuring the water supply ... the language of the RHA clearly indicates that water supply was an authorized purpose of the Buford Project (US Court of Appeals for the Eleventh Circuit, 2011: 65-66).

CHALLENGING METRO-ATLANTA'S SPATIOTEMPORAL FIX AND HYDRO-SUPREMACY

For Georgia and metro-Atlanta, the decision by the US Court of Appeals represented a major 'fix' to a potentially devastating metabolic barrier obstructing business-as-usual. The ruling, however, drastically altered the geopolitics of water production and distribution among the three riparian states by effectively legalising metro-Atlanta's dispossession of Florida and Alabama of their historical riparian rights to a reasonable share of the transboundary water flows in the ACF Basin. Thus, this ruling fits the definition of a "crisis switch" which, legally, severely impairs the ability of downstream users to challenge metro-Atlanta's hydro-supremacy over water use rights in the ACF Basin. From this perspective, the ruling by the Court of Appeals also exemplifies the notion of "accumulation by dispossession" which defines the "sinister and destructive side of spatiotemporal fixes" (Harvey, 2003: 134-5) and involves "accumulation by other means" (ibid. 136). It is against this backdrop of exhausted options to (re)capture a reasonable portion of the historical transboundary water flow from the ACF Basin that Florida embarked on a new strategy in recent years to undermine metro-Atlanta's court-sanctioned hydro-supremacy.

In 2012, high-ranking water managers from the three states and USACE were summoned to testify before the US Senate Committee on Environment and Public Works about the efficacy of USACE's operational management of the ACF Basin. While Georgia's director of the Environmental Protection

Division, Judson Turner, praised the Appellate Court for overturning Judge Magnuson's landmark 2009 ruling, water managers for Florida and Alabama criticised metro-Atlanta's hydro-supremacy. In his testimony, Greg Munson, Florida's deputy-secretary of the Department of Environmental Protection, decried the inequitable distribution of water in the ACF Basin:

In 2012, Florida experienced widespread damage to its oyster resource resulting from two years of prolonged low flow conditions. Indeed, last year set a record for the least amount of water delivered to the Bay since records were started in 1923, although this was not the year with the least rainfall (Munson, 2013: 4).

Munson later added that due to declining oyster harvests:

Governor Rick Scott requested the Secretary of the US Department of Commerce declare a commercial fishery failure for Florida's oyster harvesting areas in the Gulf of Mexico pursuant to Section 312 (a) of the Magnuson-Stevens Fishery Management and Conservation Act [MSA] (Munson, 2013: 4).

Section 312 (a)(1) of the MSA stipulates that the conditions under which an affected state may issue a disaster declaration for fisheries and includes:

(a) natural causes; (b) man-made causes beyond the control of fishery managers to mitigate through conservation and management measures, including regulatory restrictions (*including those imposed as a result of judicial action*) imposed to protect human health or the marine environment; or (c) undetermined causes (NOAA, 2007; italics added).

Governor Scott's disaster declaration drew national media attention to the alleged damages suffered as a result of reduced stream flows into Apalachicola Bay, which he blamed on the Appellate Court ruling. As we mentioned earlier, in recent months, Florida's Fish and Wildlife Conservation Commission also blamed Georgia's role in the interstate water conflict for their decision to consider closing oyster harvesting in Apalachicola Bay during the upcoming fall season (Alderstein, 2014).

SPATIOTEMPORAL FIXES AS WATER ACCUMULATION STRATEGIES

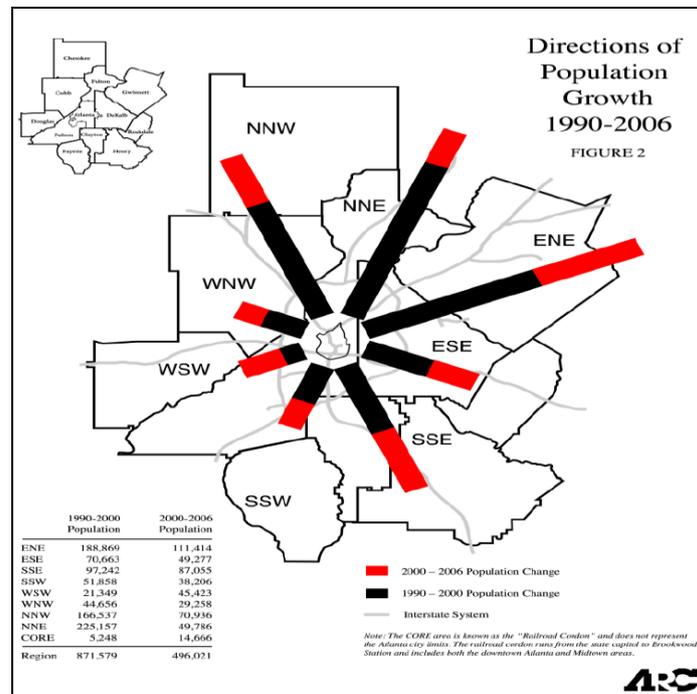
Governor Scott's 2013 disaster declaration, the August 2013 federal government listing of Apalachicola Bay as a "declared fishery resource disaster" (Turner, 2014), and the US Senate testimony of Florida water officials point to a watershed moment in the tri-state water conflict. Deputy Munson's senatorial testimony implied that the failure to negotiate a water compact with Georgia can no longer be rationalised as a result of reasonable differences, incompatibilities, or contradictions between legitimate but competing economic and territorial interests. Rather, his testimony suggested that the lack of a resolution to the conflict is part and parcel of an attempt by metro-Atlanta's power brokers to reinforce their strategic stranglehold over greater volumes of the ACF Basin's water flows, even as they profess their readiness for compact negotiations. As we have shown thus far, by relying on a number of spatiotemporal fixes, Georgia's state and metropolitan leaders have for 25 years manoeuvred to displace and defer a growth-induced water crisis and the resulting conflict over privileged water use rights in the ACF Basin onto their neighbours and downstream users. Indeed, in a manner reminiscent of Hannah Arendt's (1966) ruminations about imperialism, Atlanta's elites have endeavoured to use the tri-state water negotiations as a Trojan horse to steadily produce immovable geoeconomic facts on the ground to legitimise their hydro-supremacy. The evidence for this strategy can be found in the steady rise in water consumption to sustain the trajectory of capital flows into metro-Atlanta while at the same time exporting the crisis to comparatively weaker rural and semi-urban economic political geographies downstream.

Despite the lessons of the 1986-1988 drought, the Atlanta metropolitan statistical area (MSA) has continued to grow, adding more than 2.2 million people between 1990 and 2010, making it among the fastest growing city-regions in the US (US Census Bureau, 2013). Meanwhile, between 2000 and 2008,

the MSA's housing stock has risen by almost 40% in counties outside of the densely populated 10 'core' counties, transforming Atlanta into a sprawling metropolis, as shown in Figure 4 below (US Census Bureau, 2007). According to the Metro Atlanta Council for Quality Growth (2014: 1): "in the past year, the 10 county Atlanta Region has experienced the largest single year of growth post Great Recession (...) All 10 counties experienced positive population growth, a strong sign that the economy is recovering (...) Metro Atlanta now has more residents than 24 states". Concurrently, metro-Atlanta leads all US city-regions in terms of groundwater infiltration losses due to sprawl-induced impervious surfaces (American Rivers et al., 2002). For instance, whereas the city-region accounted for losses of between 56.9 billion to 132.8 billion gallons of water in 2002, the next closest loser, Boston, accounted for between 43.9 billion and 102.5 billion gallons per year (ibid: 1-2). In fact, in 1997, "Atlanta's 'losses' amounted to enough water to supply the average daily household needs of 1.5 million to 3.6 million people per year" (ibid: 2). This reality has transformed metro-Atlanta's relentless capital accumulation and territorial expansion into a recalcitrant challenge from both a water quality and quantity perspective. For example, to sustain the geographical forward motion of Atlanta's booming suburban economy, the urban-built environment continues to be constructed further away from the ACF watershed

In defiance of repeated warnings from Atlanta's water managers from as early as the 1940s and 1950s that "the end to the days of 'easy water' may be approaching" (Atlanta Regional Commission, 1976, cited in Hardy, 2011: 236), urban consumptive uses in the ACF Basin have increased steadily since 1970 (Marella and Fanning, 2011). Driven by relentless suburban expansion, metro-Atlanta's water use increased dramatically over that time period and is expected to continue well into the future. According to the Metropolitan North Georgia Water Planning District (2009), the region's daily water demand increased from about 320 mgd in 1990 to 420 mgd in 2000, and is projected to increase to almost 1,200 mgd by 2035. Assuming the present growth rate, metro-Atlanta will consume 75% of the total surface withdrawals in the entire ACF Basin by 2035.

Figure 4. Directions of population growth in Metro-Atlanta, 1990-2006.



Source: Atlanta Regional Commission.

Finally, in 2013, Georgia and metro-Atlanta's efforts to create space and time through gaming the tri-state compact negotiations as a means to establish immutable facts on the ground were exposed by exasperated Florida officials. Ostensibly compelled by a historically poor oyster harvest in Apalachicola Bay, Florida Governor Rick Scott filed a motion in the US Supreme Court seeking relief from the economic and environmental injuries suffered as a result of Georgia's favourable Appellate Court ruling in 2011 (US Supreme Court, 2013). In the court docket, the Governor proffered a legal argument notably compatible with our theoretical approach to the water crisis. For instance, he alleged that Georgia

took advantage of the time between initiation of the Comprehensive Study in 1992 and failure of the ACF Compact in 2003 to continually increase its consumptive uses. Since 1992, Georgia's municipal, industrial, recreational, and agricultural uses of ACF Basin water have grown significantly, but under the terms of the Memorandum of Agreement and the ACF Compact, Georgia had no entitlement to any of these inflated uses. The pattern did not end after the ACF Compact failed, but has continued unabated, despite another decade of lower court litigation and failed judicial and nonjudicial settlement efforts. Indeed, Florida has made numerous attempts to resolve this interstate dispute through formal and informal discussions, as well as court-sponsored (...) All of these efforts ultimately failed (US Supreme Court, 2013: 5-6).

In the face of several severe water crises over the last 25 years which have strained water supplies across the southeast, metro-Atlanta officials have still continued to rationalise and naturalise the "impulse to grow" (Feldman, 2009: 15). As Mike Alexander, Atlanta Regional Commission's manager for Research and Analytics, explained: "the Atlanta region is an attractive place for employers and employees; we tend to attract people from all over the country, creating more in-migration than outmigration" (Metro Atlanta Council for Quality Growth, 2014: 2). Thus, while Florida and Alabama have been unable to negotiate a reasonable water-sharing agreement with their powerful neighbour, Georgia seems to have all but ignored their concerns, consolidating its hydro-supremacy over the transboundary water flows of the ACF Basin in order to secure the necessary conditions for metro-Atlanta to become "the No. 33 most competitive city in the world in 2025 and No. 9 most competitive in the United States in 2025" (Tulshyan, 2013). In a hypercompetitive system of global city-regions, the pursuit of power, capital flows, and sufficient water will continue to be the drivers of metro-Atlanta's expansionary growth model. Given these imperatives, it is politically unthinkable and economically unlikely for metro-Atlanta to curb its "water imperialism" (Feldman, 2009: 13). Given the US system of divided government and the enduring hegemony of neoliberalism and state and urban entrepreneurialism (Harvey, 1989), it is highly unlikely that anyone or any entity will intervene and thereby risk devaluing one of the largest urban concentrations of fixed assets in the space economy and a dominant node in the global political economy (The Economist Intelligence Unit, 2013).

CONCLUSION: THE ACF WATER CONFLICT AS A 'WICKED PROBLEM'

In 2013, the tri-state water conflict took yet another turn when Florida officials publicly accused Georgia of using the compact negotiations to bolster its claims over the transboundary water flows from the ACF Basin. By locating the conflict within David Harvey's theories of the political economy of capitalist growth and crisis and the historical geographical development of Atlanta into metro-Atlanta, we might begin to illuminate the tensions and contradictions at play in the longest interstate water crisis in US history. By emphasising the wider dynamics of the ACF conflict, we have expounded upon the inherent tendencies of capitalist urbanism as exemplified by metro-Atlanta for endless economic competition and territorial expansion which presuppose resource conflicts as an alternative way to make sense of the conflict. In so doing, we have outlined the powerful role of historical institutional forces and interests in the making of metro-Atlanta's water-intensive macroeconomic growth model.

Accordingly, we described some of the strategies and tactics employed by Georgia's water negotiators and metropolitan leaders to protect what has become the largest concentration of capital in the southeastern US. At the same time, by using Harvey's interconnected theories of growth and crisis, we have tried to show how "blind ambition that creates progress can also bring about potentially devastating consequences" (Hardy, 2011: 285), such as interstate water conflicts. We also attempted to show how Atlanta's post-World War II rise to regional preeminence, its relentless pursuit of growth, and the production of conflict and crisis are systemically interrelated moments within the singularity of historical capitalism. As a result, metro-Atlanta's water crisis has carved out a new geography of conflict, which among other things, is marked by a contentious water divide between a forever-expanding metro-Atlanta, on the one hand, and mostly nonurban Florida and Alabama fishing communities and proto-industrial interests, on the other. This growing water divide will continue to unsettle interstate relations and usher in a new era of highly contentious hydropolitics in the southeastern US. We have also recounted how several delays, starting with the 1992 USACE agreement to work cooperatively on an allocation formula to the decision to proceed without the agency, served metro-Atlanta's interests.

We have also shown how from 1997 onward, when the states agreed to rescale their efforts to end the conflict by negotiating *sans* USACE, matters actually deteriorated. In this context, we argued that Georgia officials deployed a series of manoeuvres to stall negotiations and delay a resolution for over a decade. At the same time, they displaced their water crisis downstream onto in-state agricultural interests and out-of-state fishing and semi-rural industrial uses and activities. When the conflict finally returned to the US legal system, Georgia continued to pursue delay tactics, provoking the ire of a federal judge with extensive expertise in water conflict resolution. In the end, however, given the political economy of US capitalism, metro-Atlanta has continued to prevail in the conflict. Thus, by situating the ACF Basin water conflict within a framework of capitalist growth and crisis theory, we have tried to propose an alternative way of understanding a conflict which may offer new insights to approaches which conceptually prioritise corporate state dispute resolution mechanisms and adaptive management strategies (Erhardt, 1992; Grant, 2003; Yoffee et al., 2003; Sherk, 2005; Feldman, 2009), water law and legal deficiencies (DuMars and Seeley, 2004; O'Day et al., 2009), or compromised hydrological conditions (Postel et al., 1996; Postel, 2000; Jordan, 2006). While these approaches are not without merit, we believe that a comprehensive critique of Atlanta's growth model which is able to examine both its economic contradictions and its hydrological crises is imperative to explain the perdurability of the conflict.

The approach we have proposed allows for an understanding of the ACF Basin water conflict as a problem of political economy and not one of policy or technological fixes, especially if these fixes ignore the fundamental problem of metro-Atlanta's endless economic growth, territorial expansion, and the need for endless supplies of water (Bunker and Ciccantell, 2005; Foster et al., 2008). If we accept that there will neither be a political settlement nor a legal resolution to the conflict in the near future, then we also have to accept that it is time to draw attention to the structural tendencies within metro-Atlanta's growth model for economic crisis and water conflict. Moreover, if we accept the premise that endless capital accumulation and urbanisation are *sine qua non* under capitalism, then it is easy to see why the current portfolio of elite policy proposals, including water conservation and reuse, desalination, and interbasin water transfers (Missimer et al., 2014), are potentially dangerous spatiotemporal distractions from pursuing solutions which are fully commensurate with the fundamental nature and urgency of the problem. Thus, by proposing a framework which is based on the political economy of capitalist growth and crisis, we have tried to argue that understanding water conflicts in terms of the inherent contradictions and crises of capitalist urbanisation, as exemplified by metro-Atlanta, offers a more realistic point of entry for what needs to be done to resolve a "wicked" problem like the ACF Basin water conflict.

While we are mindful that policy remedies are needed to address the conflict, we are convinced that the policies being recommended by conventional scholars and promoted by elite decision-makers and power brokers have failed and will continue to fail to fix economic and ecological crises generated by Atlanta's metropolitan growth machine (for an example of an elite solution, see AECOM Capital, 2014). Although the framework we propose does not offer policy prescriptions, we hope it will stimulate new avenues of research and generate genuine policy solutions which can actually address the root causes of the ACF water conflict. The long-term goal of these efforts would be to encourage fundamental economic and ecological transformations in the direction of greater interstate and interurban cooperation around the sustainability of both human and ecological systems. To that end, however, we have tried to show via the case of the ACF Basin water conflict and metro-Atlanta's water accumulation strategies that temporary sociospatial fixes will only lead to the "unsustainable exploitation of nature or inherited social resources [and the] deferral of problems into an indefinite future" (Harvey, 2003; Jessop, 2013: 7).

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