

7-20-2004

Water Wars, Eastern Style: Divvying up the Apalachicola-Chattahoochee-Flint River Basin

Ruhl

Follow this and additional works at: http://opensiuc.lib.siu.edu/ucowrconfs_2004

This is the abstract of a presentation given on Tuesday, 20 July 2004, in session 8 of the UCOWR conference.

Recommended Citation

Ruhl, "Water Wars, Eastern Style: Divvying up the Apalachicola-Chattahoochee-Flint River Basin" (2004). 2004. Paper 102.
http://opensiuc.lib.siu.edu/ucowrconfs_2004/102

This Article is brought to you for free and open access by the Conference Proceedings at OpenSIUC. It has been accepted for inclusion in 2004 by an authorized administrator of OpenSIUC. For more information, please contact opensiuc@lib.siu.edu.

Water Wars, Eastern Style: Divvyng Up the Apalachicola-Chattahoochee-Flint River Basin

J.B. Ruhl

Water, a lubricant for many purposes, has been a source of friction in the arid West for decades. Yet this tradition of intrastate and interstate water disputes is no longer confined to the western states—the water wars, with their urban, agricultural, and ecological combatants, have moved east. And in the course of that migration, the context and challenges of water allocation seem to have become more intractable. No setting illustrates this phenomenon more completely and immediately than does the dispute between Georgia, Florida, and Alabama over the Apalachicola-Chattahoochee-Flint (ACF) River Basin and its ecologically impressive estuary, the Apalachicola Bay.

The ACF basin covers over 12 million acres stretching from north of Atlanta to the “Big Bend” of Florida’s Gulf Coast. Three very different rivers course through it. The Chattahoochee is largely impounded by reservoirs, several of which are maintained by the U.S. Army Corps of Engineers (Corps) primarily for navigational, power, and flood control purposes. Atlanta derives most of its drinking water from one of these impoundments, Lake Lanier, which has also become a recreational Mecca. Alabama derives considerable hydropower downstream where the river forms the state boundary. In southern Georgia, the Flint River runs through a predominantly agricultural region. While mainly free flowing, the Flint feels the effects of massive groundwater withdrawals for irrigation, though the interplay between river and aquifer is not fully defined. The Chattahoochee and Flint Rivers meet to form the Apalachicola, which meanders through the flat Florida Panhandle to empty into Apalachicola Bay. This region of Florida is sparsely populated—most of the land along the river is in conservation status. This region is also regarded by many ecologists as one of the biodiversity “hotspots” of the planet.

The dispute over the ACF began in the 1980s as a series of droughts combined with metropolitan Atlanta’s growing demand for residential and commercial water supplies to make all interests aware that the ACF has limits. Holding water in reservoirs to quench Atlanta’s thirst could mean less water for hydropower generation downstream and an interruption of the natural flow regime that is essential to the Apalachicola River and Bay ecosystems. Withdrawing more groundwater for agricultural irrigation in the Flint basin could exacerbate the problem. By the late 1980s, therefore, the states and the Corps had become embroiled in litigation challenging Georgia’s efforts to impound and divert yet more water.

Interstate water disputes of this sort have generally been resolved through four legal mechanisms: (1) congressional allocation under its jurisdiction over commerce between the states; (2) interstate compacts entered into by states and approved by Congress; (3) the original jurisdiction of the United States Supreme Court to resolve disputes between the states, in these cases disputes over interstate water allocation; or (4) litigation under other federal laws, such as the Endangered Species Act, which apply to the states. But Congress rarely acts in this domain to directly allocate interstate waters, and litigation is a high stakes proposition, so a series of negotiations led the states in 1997 to enter a novel interstate compact in which they agreed to negotiate an allocation system for the ACF. Alas, the negotiations broke apart in 2003, meaning the states are back in litigation and may expand that front to include litigation before the Supreme Court.

This paper first describes the physical, social, and ecological contexts of the ACF and then recounts the history leading to the formation and dissolution of the interstate compact. That background leads to the critical legal question—how the Supreme Court might approach the controversy through its doctrine of “equitable apportionment.” The Court’s doctrine, forged in the West well before the rise of present-day ecological knowledge and commitment, employs a loose balancing test that favors economic interests and water resource development. Yet the ecological demands of the Apalachicola River and Bay and the human demands of Atlanta’s economy may not so easily lend themselves to balancing.

The paper concludes by exploring two alternative paths the ACF water allocation controversy could follow. On one path, the Supreme Court would integrate modern ecological theory, including the concept of ecosystem services, into its equitable apportionment doctrine, which clearly would favor Florida’s position. Were the Court to decline to do so, however, an alternate path would find Florida or conservation-oriented interest groups resorting to other environmental laws, such as the Endangered Species Act, as the means for influencing water distribution in the ACF Basin. Either way, there is bound to be much law and policy controversy in the ACF’s future.

Physical, Social, and Ecological Context

The ACF basin covers 19,600 square miles, within which human population has exceeded 6 million and is rapidly approaching 7 million. Georgia dominates in terms of population (90 percent), land area (75 percent), and water withdrawals (82 percent). The dominant land uses are forestry and agriculture. Hundreds of small reservoirs are scattered throughout the basin’s waters, but only 16 exist on the three mainstem rivers.

The ACF basin is by no means homogeneous. Indeed, the context of the controversy involves three distinct physical watersheds, each of which represents profoundly different social and ecological settings, and all of which lead to Apalachicola Bay.¹

Chattahoochee Basin

The Chattahoochee River finds its origins north of Atlanta and runs for over 400 miles, 200 miles of which form the lower stretch of the Georgia-Alabama border. The basin covers 8770 square miles, the dominant feature of which is the Atlanta metropolitan area in the northeast portion. Most of the river is impounded by reservoirs—thirteen in all, including the basin’s two largest in Lake Lanier (38,500 acres) in the upper reaches and Walter F. George (45,000 acres) in the southwest portion. Atlanta draws over 500 million gallons per day from Lake Lanier, returning 350 mgd to the river downstream of the city as treated wastewater. As a headwaters reservoir, Lake Lanier’s watershed accounts for only a small portion of the basin and, consequently, the reservoir is slow to fill.

¹ An excellent overview of the physical and social conditions of the ACF and Apalachicola Bay is found in the Corps’ 1998 environmental impact statement (U.S. Army Corps of Engineers 1998), upon which the discussion in the text is largely based.

Flint Basin

The Flint River finds its origins just south of Atlanta and, with only three reservoirs, is free-flowing for significant stretches of its 350 river miles. The basin of about 8500 square miles supports a significant agricultural economy. Water extraction is mainly in the form of irrigation from Floridan Aquifer groundwater sources, with no precise figure on the total use. The hydrological relation between the aquifer and the surface flow in the river is not completely understood.

Apalachicola Basin

The Apalachicola River winds 100 river miles through the flat Florida Panhandle area. Although free-flowing, the river channel has been significantly altered and manipulated by Corps dredging designed to maintain a navigation channel. The area is sparsely populated and has little significant economic activity. Most of the land along the river is in conservation status. The Apalachicola is Florida's largest river in terms of flow and the 27th largest in the United States. It is also Florida's only direct link to the Appalachian (through the Chattahoochee) and Piedmont (through the Flint) ecosystems, an important factor in the rich biodiversity of species found in the area. Indeed, the river's vast wetland floodplain, with its signature Tupelo cypress swamps, is considered one of the most productive in any temperate region of the world. This river and floodplain system provides habitat for the highest concentration of endangered and threatened species found in the ACF basin. Significant deviation from the natural hydrograph flows for the Apalachicola can significantly alter the distribution of terrestrial habitat in the floodplain and constrain access by fish species to the floodplain areas for breeding, forage, and shelter.

Apalachicola Bay

The Apalachicola provides 35 percent of the freshwater input to the eastern Gulf of Mexico, which is an important factor in making the Apalachicola Bay itself a richly productive estuary. An extensive array of estuarine wetlands provides significant shelter for juveniles of many species found in the Gulf. A series of barrier islands off of the coast provide a protected bay area that further enhances the value of the estuary to a variety of marine species. Over 10 percent of all oysters consumed in the United States are harvested from Apalachicola Bay, and the recreational fishing industry in the eastern Gulf, which accounts for an economy of several billion dollars annually, owes much of its success to the bay's sheltered estuarine complex. The key to much of the estuary's productivity, however, is the fluctuating salinity level produced by the ACF's freshwater flow hydrograph, to which many species (e.g., oysters) are adapted. Reduced flow from the ACF necessarily would drive salinity levels higher throughout the estuary, altering the assembly of terrestrial and marine species.

History of the ACF Controversy

The dispute over the ACF has intrigued water law scholars since its earliest skirmishes, and by now its history is well documented (Copas 1997; Erhardt 1992; Stephenson 2000; Vest 1993; U.S. Army Corps of Engineers 1998). The dispute has played out in three parallel, interrelated tracks: (1) Corps analysis of water reallocation requests by Georgia municipalities;

(2) inter-governmental litigation regarding the validity of the Corps' reallocation efforts; and (3) inter-governmental efforts to cooperate in the development of an interstate allocation of ACF water.

Corps Water Reallocations

The ACF basin suffered a series of serious droughts in the 1980s. Coupled with massive population growth in the Atlanta metropolitan area, the droughts prompted a variety of interests in the ACF basin to wake up to the fact that the ACF is not an unbounded water supply. Chief among these were Georgia municipalities, many of which began in the early 1980s to request that the Corps reallocate water in its storage reservoirs on the Chattahoochee to municipal supply. The Corps began a process of studying the requests during the 1980s, deciding in 1990 to approve several of them. At about the same time, Georgia submitted an application to the Corps to construct a major water storage reservoir on the Tallapoosa River, which flows from Georgia into Alabama (but is not in the ACF basin).

Inter-governmental Litigation

Prompted by the Corps' move toward favorable consideration of the Georgia water reallocation requests as well as by Georgia's Tallapoosa River reservoir permit application, Alabama filed suit in federal court in 1990 to enjoin the Corps from making any reallocations.² Alabama's litigation, filed in federal court in Alabama, was based on federal environmental laws such as the National Environmental Policy Act, and Florida later intervened in order to protect its interests in maintaining a natural flow hydrograph into Apalachicola Bay.

As years passed with no increased water allocation on the horizon, Georgia grew increasingly frustrated by the Corps' refusal to consider its request to boost water withdrawals from Lake Lanier to over 700 million gallons per day. In 2000, Georgia filed suit in a federal court in Georgia, arguing that the Corps had overstepped its power by interfering with Georgia's use of state water.³ Florida has successfully intervened in this litigation as well.

A third suit involving the ACF was initiated by a group of power distributors in federal court in the District of Columbia.⁴ The companies argued that the Corps has managed water on the rivers so as to improperly inflate the price of electricity they must pay to hydropower producers.

All three pieces of litigation were either stayed or dormant during the time in which the states were actively engaged in the cooperative efforts described below. However, with the demise of the interstate compact, as discussed below, the litigation has reactivated in each case. Recently, the court in the Alabama litigation enjoined the Corps and Georgia from entering into or implementing any new water supply contracts in the ACF basin. Shortly thereafter, however, the court in the D.C. litigation approved a settlement which would involve Corps reallocation of water to municipal water suppliers in Georgia, though the court stayed the effect of the settlement pending the proceedings in the Alabama case. Meanwhile, the Georgia litigation has

² Alabama v. United States Army Corps of Engineers, No. CV 90-BE-1331-E (N.D. Ala.)

³ Georgia v. United States Army Corps of Engineers, No. 2:01-CV-0026-RWS (N.D. Ga.)

⁴ Southeastern Federal Power Customers, Inc. v. United States Army Corps of Engineers, No. 1:00CV02975 (D.D.C.).

become active again as well. The states thus find themselves playing three dimensional chess in the federal courts.

Inter-governmental Cooperation

Beginning as early as 1983, the three ACF states and the Corps have engaged in several cooperative forums to attempt to arrive at an agreed allocation of water. The three states initially agreed to work toward development of a water management system in 1983. After Alabama filed its litigation in 1990, the states entered into a series of stay agreements that left the litigation on hold while the states engaged in a study, known as the Comprehensive Study, of the physical and socioeconomic conditions of the ACF basin and Apalachicola Bay.

The era of cooperation reached a high point in 1997, when the states and the federal government entered an interstate compact designed to “develop an allocation formula for equitably apportioning the surface waters of the ACF Basin among the States while protecting the water quality, ecology, and biodiversity of the ACF.”⁵ The agreement was, in other words, an agreement to negotiate an allocation, after which the agreement would have established a tri-state agency for maintaining the system.

Alas, five years later, after numerous extensions of negotiation deadlines, use of expert mediators, and many near agreements, the states could not agree. Georgia and Florida could not come to terms about how to balance Atlanta’s desire for a stable municipal water supply, which requires greater control of the flow pattern along the Chattahoochee, southern Georgia’s desire to increase irrigation withdrawals, which could impair flows on the Flint, and Florida’s desire for a stable ecology in Apalachicola Bay, which requires a natural flow regime. The compact expired in August 2003, leaving the states to reactivate their previously-filed litigation and, more ominously perhaps, to contemplate whether to seek the original jurisdiction of the U.S. Supreme Court.

Equitable Apportionment of Ecosystem Services

The Supreme Court’s law of interstate water allocation goes back almost 100 years.⁶ The Court first announced that it had the authority, under its original jurisdiction power, to apportion interstate streams in 1908, in a dispute between Kansas and Colorado over the Arkansas River.⁷ That case is important because the Court rejected Colorado’s argument that its territorial sovereignty gave it the right to deplete the entire flow of the river. Since then the Court has laid down three important foundational principles about the rights of states respective to others, as recently summarized in the 1983 case of *Idaho v. Oregon*:⁸

- First, a State may not preserve solely for its own inhabitants the natural resources located within its borders.

⁵ Pub. L. 105-104.

⁶ The author has in previous work provided a more extensive legal analysis of the application of the Supreme Court’s water allocation jurisprudence to the ACF controversy (Ruhl 2003), upon which the discussion in the text is largely based.

⁷ *Kansas v. Colorado*, 206 U.S. 46 (1907).

⁸ 462 U.S. 1017, 1020-27 (1983).

- Second, no state has inherent priority, absolute or presumptive, over another state in the use of water from an interstate stream.
- Third, all states have the affirmative duty to take reasonable steps to conserve prospective water use, and even to augment water supply, as a condition to making a successful claim to a fair share of an interstate water.

The upshot is that, just because Georgia is upstream of Florida, it has no inherent right to deplete the flow of water to Florida, or take priority over Florida in use of the ACF waters, or use interstate waters within its boundaries however it sees fit. Yet, while these principles may sound good for Florida's interests, there is more to it. First, the Court has set a high standard of injury as a prerequisite to seeking relief in the form of a claim to the right to more water from an interstate stream. The complaining state must show clear and convincing evidence of a substantial injury to its interests as a result of another state's use of the resource.⁹ Particularly in the East, where the Riparian Rights system dominates state water law, this burden places states interested in water conservation at a disadvantage to states interested in rapid development of water resources (Abrams 2002). Florida, for example, is interested in leaving water in the ACF for to promote ecological resources, while Georgia seeks ever more water for its urban and agricultural sectors. It is difficult for a state in Florida's position, under the conventional burden of proof, to pinpoint the nature and magnitude of injury needed to open the Court's door.

If that hurdle is passed, the Court applies a rather open-ended doctrine known as "equitable apportionment" to resolve the dispute. As summarized in *Nebraska v. Wyoming*,¹⁰ the factors that go into this mix include, but are not limited to:

- Established rights under state water law
- Physical and climactic conditions
- Consumptive use patterns
- Character and rate of return flows
- Extent of established uses
- Availability of water storage
- Practical effect of wasteful uses on downstream areas
- Damage to upstream areas as compared to benefits to downstream areas if the former are limited

In other words, equitable apportionment encompasses whatever seems relevant to a fair division of the resource between the states. This means equitable apportionment is a flexible doctrine, able to incorporate new knowledge not only about water demands and uses, but also about the ecology of water in general (Tarlock 1985). The ACF presents just such an occasion.

⁹ *Missouri v. Illinois*, 200 U.S. 496, 521 (1906).

¹⁰ 325 U.S. 589, 618 (1945).

Alternative Paths for Defining the Law of the River

Accounting for Ecosystem Services

Because of the way Florida has described its interests, focusing on maintaining natural flows rather than simply minimum base flows, the ACF situation presents some unusual factors for consideration under the doctrines of substantial injury and equitable apportionment. As Moore (1999, p. 67) describes it, “the ‘natural flow regime’ approach to allocation proposed by Florida elevates environmental concerns to a new level in water quantity disputes.” Indeed, the ACF case presents an opportunity for the Court to update its law of interstate water allocation with a dose of ecological reality.

At the threshold level, the ACF presents a novel situation for the substantial injury test. For the most part the Court’s focus in determining the presence of injury is on economic injury. That would seem to favor Georgia, which has monstrous Atlanta and its recreational playground, Lake Lanier, to offer versus the puny, by comparison, town of Apalachicola and its oyster industry.

But what of the ecological injury Georgia’s unquenchable thirst poses downstream? It is well-demonstrated that the disruption of natural flow regimes on the ACF has demonstrable effects on downstream fishery resources in the river and the bay and can significantly alter riparian habitat regimes (U.S. Army Corps of Engineers 1998). Surely Florida will want to press the case for this kind of injury in the Court.

Yet Florida need not—indeed, should not—stop there, for increasingly we understand that ecological injury in fact *is* economic injury. Healthy functioning ecosystems undeniably provide immensely valuable services to human populations (Costanza 1997; Daily 1997). Indeed, recent work on the value of such ecosystem services suggests that the Apalachicola River and its floodplain basin are as or more economically valuable than the Lake Lanier based recreational economy. The natural flow regime supports flood control, nutrient regulation, food for estuary fishes, and other important services estimated at over \$5 billion in value annually (Garrett 2003), a figure in line with estimates for similar estuarine ecosystems (Houck 1983).

Indeed, although most of the Court’s jurisprudence focuses on water, it has made clear that in interstate disputes all natural resources are subject to its original jurisdiction. Thus, in *Idaho v. Oregon*, the Court apportioned salmon runs in the Columbia-Snake River system between the two states, saying that “a dispute over the water flowing through the [river] system would be resolved by the equitable apportionment doctrine; we see no reason to accord different treatment to a controversy over a similar natural resource of that system.”¹¹ Like fish flowing through the river system, ecosystem services do as well, delivering true economic value in many different ways and locations. Injury to those economically valuable resources ought, therefore, to count in the “substantial injury” analysis.

Likewise, once those ecosystem services are recognized for both their ecologic and economic values, the Court should focus its equitable apportionment doctrine on the apportionment of resources associated with those services, which in this case is the natural flow regime of the ACF River. In other words, it is not enough to protect a minimum base flow for Florida, as Georgia has emphasized; rather, the real medium of apportionment should be the flow regime itself.

¹¹ 462 U.S. at 1024.

The suggestions that the Court should take injury to ecosystem services into account for purposes of its substantial injury test, and should focus on ecosystem services in the apportionment phase of the case as well, are novel propositions, but they are the logical, incremental extensions of the Court's analysis in *Idaho v. Oregon*. The salmon and trout involved in that case were the resource of interest for Idaho—they moved within the river system and were, for all practical purposes, what made the water valuable to the state.

Ecosystem services, like the salmon, are economically valuable resources that flow within the water system of the ACF and any other river. Moreover, with each year we understand more about the nature and value of ecosystem services—to leave them out of the interstate water apportionment analysis would simply be to ignore the ecological and economic realities of river systems such as the ACF.

Why would the Court bother to engage in apportionment of interstate water, and of interstate fish, but not of interstate ecosystem services? What would be the point of leaving the latter out of the calculus? To be sure, water has value of its own in the consumptive sense—we drink it and use it for irrigation and other industrial applications. But water left in the river is also immensely valuable, not as a commodity but because of the ecosystem functions it performs. You can't have salmon without some water in the river. Wetlands aren't wet without water in the river. Riparian habitat isn't riparian if there is no water in the river. These are the ecosystem functions of water left in the river, and they provide valuable services which the Court could, and should, take into account in the water apportionment calculus.

Indeed, the Court did essentially that in 1931, in the pre-Clean Water Act case of *New Jersey v. New York*,¹² when it ruled that New York must provide the downstream Delaware Basin states with sufficient minimum base flow in the river to dilute New York City's waste discharges. With today's greater understanding of the role and value of ecosystem services that instream water provides, such as not only waste dilution but nutrient and temperature regulation and riparian habitat support, the Court should be more than willing to move beyond the minimum base flow criterion to one embracing the natural flow regime.

In short, a river is about more than water, thus so too must the Court's doctrine of equitable apportionment extend beyond the mere question of water quantity. Justice O'Connor recently observed that the distinction between water quantity and water quality is "artificial."¹³ To the extent anyone suggests the Court's equitable apportionment jurisprudence is about only water quantity, therefore, they too rely on an artificiality that must cede to ecological reality. The ACF may very well become the test case for that proposition, and potentially the dawn of a new era for the doctrine of equitable apportionment.

Leveraging Endangered Species

Any discussion of interstate water allocation in modern times would be remiss not to include consideration of the influence of public law on the river system, particularly laws regulating environmental quality and natural resource conservation. Regardless of what the Supreme Court does, the ACF also is likely to experience what has transpired in the great river

¹² 283 U.S. 336, 345-48.

¹³ PUD No. 1 v. Washington Dep't of Ecology, 511 U.S. 700, 701 (1994) (As the Court explained, "Petitioners' assertion that the [Clean Water] Act is only concerned with water quality, not quantity, makes an artificial distinction, since a sufficient lowering of quantity could destroy all of a river's designated uses, and since the Act recognizes that reduced stream flow can constitute water pollution.").

systems of the West. Gradually, the “Old” Law of the River throughout rivers in the West is yielding to a “New” Law of the River. Most of the interstate compacts, congressional legislation, and Supreme Court cases fixing the Law of the River for western waters predate the age of mature environmental laws. What western states are finding is that the Law of the River, once thought to be settled, is no match for the law of the Endangered Species Act (ESA), the Clean Water Act (CWA), and other modern environmental laws. The Law of the River doesn’t always work well under those statutes, and court after court has said it must yield to them. And this “New” Law of the River springs not from interstate compacts and Supreme Court decisions, but from federal administrative agencies, citizen suit litigation, and the lower federal courts.

This is all very disconcerting to western states used to waging their water wars on familiar grounds and with familiar foes (Rossman 2003), and it has the potential to unsettle the ACF as well. An endangered mussel here or threatened fish there, and you get a whole different set of issues and players. Indeed, particularly under the conventional law of interstate water allocation, which favors states that rapidly develop water uses over states interested in conservation, states like Florida may find strategic use of ESA and CWA litigation effective in the short run for controlling their thirsty neighbors (Abrams 2002). In other words, don’t expect the Supreme Court to settle once and for all how the ACF gets divided up, particularly if its approach to equitable apportionment is to stick close to its conventional doctrine and eschew integration of ecosystem services theory.

Conclusion

The controversy over the ACF may signal the end of water abundance in the East and the beginning of intensified competition and conflict between the Eastern states over interstate waters. The Western states, with active involvement of the Supreme Court, have developed a model for interstate allocation of water that is not particularly friendly to Florida’s position that natural flow regimes must be maintained on behalf of ecological values and at the expense of commodity values. The tri-state effort to solve the dispute western style—through an interstate compact—failed, largely because there simply is no way to accommodate all the water interests at once. The matter may find its way to the Supreme Court, where the question will be whether the Court adheres to the Western model or modernizes its doctrine of equitable apportionment to acknowledge what we have learned over the past three decades about the value of ecosystem services. The ACF thus could truly lead to a new water law for a new water age.

References

- Abrams, R.H. 2002. Interstate water allocation: A contemporary history for eastern states. *University of Arkansas-Little Rock Law Review* 25(1):155-172.
- Copas, D.N. 1997. The southeastern water compact, panacea or Pandora’s box? A law and economics analysis of the viability of interstate water compacts. *William and Mary Environmental Law and Policy Review* 21(3):697-734.
- Costanza, R. et al. 1997. The value of the world’s ecosystem services and natural capital. *Nature* 387(6630):253-260.

Daily, G., ed. 1997. *Nature's Services: Societal Dependence on Natural Ecosystems*. Washington D.C.: Island Press.

Erhardt, C. 1992. The battle over "The Hootch": The federal-interstate water compact and the resolution of rights in the Chattahoochee River. *Stanford Environmental Law Journal* 11(1):200-228.

Garrett, G.W. 2003. The economic value of the Apalachicola River and Bay. Unpublished masters degree paper.

Houck, O.A. 1983. Land loss in coastal Louisiana: Causes, consequences, and remedies. *Tulane Law Review* 58(1):3-168.

Moore, C.G. 1999. Water wars: Interstate water allocation in the southeast. *Natural Resources & Environment* 14(1):5-10, 66-67.

Rossmann, A. 2003. A new law and the "era of limits" on the Colorado. *Natural Resources & Environment* 18(2):3-7.

Ruhl, J.B. 2003. Equitable apportionment of ecosystem services: New water law for a new water age. *Journal of Land Use & Environmental Law* 19(1):47-57.

Stephenson, D.S. 2000. The tri-state compact: falling waters and fading opportunities. *Journal of Land Use & Environmental Law* 16(1):83-109.

Tarlock, A.D. 1985. The law of equitable apportionment revisited, updated, and restated. *University of Colorado Law Review* 56(3):381-411.

United States Army Corps of Engineers. 1998. Draft Environmental Impact Statement: Water Allocation for the Apalachicola-Chattahoochee-Flint (ACF) River Basin, Alabama, Florida, and Georgia—Main Report.

Vest, R.E. 1993. Water wars in the southeast: Alabama, Florida, and Georgia square off over the Apalachicola-Chattahoochee-Flint River Basin. *Georgia State University Law Review* 9(3):689-716.

Author Contact Information:

J.B. Ruhl
Matthews & Hawkins Professor of Property
Florida State University College of Law
Tallahassee, Florida 32306-1601
(850) 644-1596
jruhl@law.fsu.edu