August 30, 2011

Integrated Eastern states water management: borrowing from the Coastal Zone Management Act

Robert H Abrams

Available at: https://works.bepress.com/robert_abrams/1/
Integrated Eastern States Water Management: Borrowing from the Coastal Zone Management Act

Robert Haskell Abrams

More robust planning and management is needed to confront new patterns of water use and increasingly extreme and less predictable variations in water availability. Items such as water allocation law, an incomplete array of water management objectives, and the comparatively rigid operating rules for water facilities, that in the past had barely mattered, are now much more important. Neither the water law of most Eastern states nor the existing water institutions are adequate to the needs of a less stable, and possibly shorter, water supply. The failure of adaptation has the potential to cause serious economic and environmental harm if water is not better managed, and the most essential uses of water given priority in times of shortage. This Article considers whether a new water governance regime offers a realistic possibility for improving water management in the Eastern United States in what is likely to become an era of far more commonplace shortages of water. The proposed governance model has two principal legal elements and one operational aspect. Legally the model relies on (1) adoption of a comprehensive permit system that is known as “regulated riparianism” as the underlying state water law (2) enhanced by a federal statute similar to the Coastal Zone Management Act that coordinates both federal and state water allocation activities to be consistent with the states’ adopted and federally approved water plans. Operationally, the model incorporates multiparty use of computer simulations modeling a full array of basin-wide benefits as a key element in determining facilities operation.

Contents

Integrated Eastern States Water Management: Borrowing from the Coastal Zone Management Act ........................................................................................................................................... 1

I. The Water Allocation Challenges Facing the Eastern States .............................................. 2

II. Regulated Riparianism and the Management of Water: Key Values to Protect and Problems to Solve ................................................................................................................................. 12

A. Water Security: The Role of Hierarchical Values for the Use of Water ......................... 15

1 Professor of Law, Florida A & M University, College of Law. The author would like to thank the many people who commented on earlier iterations of this article of whom three, Pam Bush, Noah Hall, and Dan Sheer deserve special mention. The author also would like to thank the Florida A & M University College of Law for its research support, and Mr. Joe Dillon, a recent graduate, and Ms. Akunna Olumba, a J.D. candidate, for their research assistance.
I. The Water Allocation Challenges Facing the Eastern States

Water allocation law, long thought of as a problem of the nation’s more arid western regions, began to gain prominence in the American East in the most recent quarter century. The phrase “Water Wars” that formerly was a West-only appellation, began to emerge in places as humid and tropical as southwest Florida, where the average annual rainfall exceeds 40 inches. There also were several instances of localized shortages, particularly problems arising in coastal regions where municipalities could not meet increased demand due to threats of saline intrusion that would accompany increased groundwater pumping. A leading early example of that was the hotly contested 60 million gallon per day diversion of Roanoke River water to meet water supply needs of Virginia Beach, Virginia, 85-miles away in the James River drainage.  

---

3 See, e.g., http://www.idcide.com/weather/fl/tampa.htm (Tampa, FL annual average precipitation is 44.77 inches).
5 North Carolina v. Hudson, 731 F. Supp. 1291 (E.D.N.C. 1990). This saga is discussed in JOSEPH L. SAX,
The most prominent harbinger of a new era for Eastern states water allocation is the very public clash in drought years, of which there recently have been many, over the use of the waters in the Apalachicola- Chattahoochee- Flint (ACF) basin. As popularly portrayed, that water dispute pits the three basin states, Georgia, Alabama, and Florida, as protagonists with Georgia fighting to maintain metropolitan Atlanta’s water supply against ecological, power, recreation, and navigation interests championed by the downstream states.6

Historically, the water law of the Eastern states was common law riparianism, which has as its central principle an equitable sharing of the resource among those whose lands abut the watercourses.7 Decisions are case-by-case, fact dependent accommodations of the competing interests, which only rarely force one water use to cease in order to make way for another.8 Many commentators feel that the doctrine remains viable only so long as the resource it is allocating continues to be available in relative abundance and genuine shortages of water in the region are rare.9 As a consequence, the water allocation content of the law barely matters because there almost always is enough water to go around.

Times change, economies change, attitudes and regulations change, and at this particular point in history, so does the climate. In regard to water use and management, the most precipitous changes are in the human factors.10 In the last half century in the


7See, e.g., Sax 4th ed. at 28-27.

8 Compare, e.g., Mason v Hoyle, 56 Conn. 255, 14 A. 786 (1888) (multiple mill use accommodation found) with Taylor v Tampa Coal, 46 So.2d 392 (Fla. 1950) (irrigation curtailed during drought to preserve recreation).


10 For example, the two most prominent impacts of the last half century on surface water withdrawals both are traceable to environmental attitudes and regulation – the improved water quality standards of the Clean Water Act led to greatly reduced withdrawals as a means of avoiding greater treatment costs associated with treating higher volumes of water and the Endangered Species Act led to greater awareness and protection of flows. Similarly, the increasing importance of water-based recreation as an economic engine and in terms of public attitudes is now a prominent consideration in water management decisions. Looking ahead, the volumetrically most prominent change in water use will be linked to
American East, populations and ecological awareness have increased, as has biofuels production and energy generation which are major water-using activities. Agricultural irrigation to increase crop yields is becoming a common practice in the East as it has long been in the American West. In short, Eastern states competition for the use of water, especially when in situ uses are considered, is considerably greater than in the past, and the historic Eastern states condition of water sufficiency is nearing an end in many basins. More important uses, though expected to ratchet down their use as much as feasible, need to be preferred in times of shortage over uses that are less essential.

On the climate side, droughts and floods both are becoming more intense, with 2011 setting records for extreme weather events of all types. Summers are drier, winters, on average, are both warmer and wetter. “Stationarity” a term defined by hydrologists as “the idea that natural systems fluctuate within an unchanging envelope of variability” has been declared, “Dead,” undercutting one of the premises upon which water control facilities were built, and on which their historic operating plans depended. That same stationarity also is an assumption on which state water management plans (those that exist) rely.

Taking all these changes together, new, more robust, planning and management is needed to confront new patterns of water use and water availability variations that already are more extreme and less predictable than they were just a few years ago. Items such as water allocation law, maximizing accomplishment of water management objectives, and the comparatively rigid operating rules for water facilities, that in the past had barely mattered, are now much more important. The Eastern states water law of the future has to anticipate and address a far wider variety of supply and demand scenarios than was the case only a few years ago.

changes in cooling technology in thermoelectric generation. See infra at QQQ.


13 Extraordinary tornado activity, as well as droughts and floods have marked the first half of 2011. Id. at 2-7.


Neither the water law of most Eastern states nor the existing water institutions are able to adapt to the transformative combination of increased water demand and less reliable, less well-timed, and possibly shorter, water supply. The failure of adaptation has the potential to cause serious economic and environmental harm if water is not better managed. This Article considers whether a new water governance regime offers a realistic possibility for improving water management in the Eastern United States in what is likely to become an era of far more commonplace shortages of water.

The proposed governance model has two principal legal elements: (1) adoption of a comprehensive permit system that is known as “regulated riparianism” as the underlying state water law, (2) enhanced by a federal statute similar to the Coastal Zone Management Act that coordinates both federal and state water allocation activities to be consistent with the states’ adopted and federally approved water plans. Importantly, under a model regulated riparianism statute, state water law and planning address both normal conditions and how water allocation is changed to meet episodic shortage conditions. In most areas of the East, shortages usually will be linked to drought conditions. In some locales, particularly coastal regions, shortages will be more endemic because of limits on groundwater extraction due to saline intrusion into over-pumped aquifers and the upstream tidal flow of saltwater that requires surface water intakes to be located far upstream on larger rivers suitable as supply sources.

Water transfers will be part of the solution, but transfers always have been controversial and are likely to be even more so as most potential areas of origin view themselves as equally threatened by the shortages that are accompanying the changing water use and climatic patterns. Water conservation will be part of the solution, but the degree of variability of supply, due to the heightened incidence of extreme drought, demands that the water management arsenal include more than increased conservation among

---

16 This Article focuses exclusively on employing the structure of the CZMA in the East. For a call for its adoption to solve certain Western water law problems, see Barton Thompson, Jr., Creating a Coastal Zone Management Act for Watershed Management, 42:1 ENVIRONMENTAL LAW (forthcoming, 2011).

17 As its model, this Article will use the Regulated Riparianism Model Water Code propounded by the American Society of Civil Engineers under the leadership of Professor Joseph Dellapenna. See Am. Soc’y Of Civil Engrs, Regulated Riparian Model Water Code, § 2R-1-01 (2004)

18 Flood conditions also require management, but they impact water allocation only insofar as managing reservoirs to ensure storage availability for flood control purposes might reduce the amount of water in storage when if low water conditions are encountered before there has been an opportunity to replenish the water in storage.

19 For example, South Carolina, a downstream state on the Catawba River sought an equitable apportionment to protect its interest in the continued flow of the Catawba which was being transferred upstream by the State of North Carolina to increase municipal supply security in the Yadkin-Pee Dee Basin. State of South Carolina v. State of North Carolina, 552 U.S. 1160 (2008) (granting leave to file), Reply Brief of North Carolina in Opposition to Motion for Leave to File an Original Action, 11-17.
the weaponry. Water banking, also will have a role to play. What most emphatically will not work is Western states prior appropriation, which creates calcified senior-take-all perpetual water rights that are resistant to condition-sensitive allocation among uses.20

Regulated riparianism is founded on a permitting system that easily accommodates preferences because it relies on term-limited use permits which only can be issued in support of uses that are considered “reasonable” under the standards of the statute.21 Permits can be granted (or limited, or denied) with reference to expected demand in each of the preferred or hierarchically designated categories.22 Regulated riparianism permits also include a variety of conditions that limit the exercise of the permit. Importantly, the permits themselves and the planned functioning of the system prescribe modifications in water usage in the event that the water source experiences an acute shortage episode.23 Regulated riparianism further avoids entrenchment because the water subject to a permit becomes available for reallocation as permits expire, rather than being locked the straightjacket of being a perpetual entitlement. The first major section of this Article will more fully explain the management potential of regulated riparianism, building a vision of a model system for Eastern states to adopt as their governing domestic water law. Additionally, the reader will see how preferences favoring progressively more crucial uses of water can be effectuated by requiring short-term reallocation of water as an articulated aspect of the permits and the operation of the water management system in response to acute water shortages and other forms of water emergency.

The second section of the article takes a somewhat different tack, it considers the very real issues that inhere in successfully managing water when the complicating factors of American federalism are added to the mix. First and foremost, water management is a multi-objective exercise, that almost invariably requires assessing trade-offs among several objectives. Even if there are priorities established among water uses, there remains a question of balancing accomplishment of objectives because even the most vital objective may be capable of getting by for short periods of time with substantially reduced allocations of water that allow other objectives to be maintained. Very vitally,

---

20 This Article will not address in any detail the possible application of prior appropriation in the East, nor the many flaws that doctrine has that make its costs greatly exceed its benefits for a region having the East’s water resources and water use characteristics. A forthcoming short article by the author, tentatively entitled, “Looking Beyond the 100th Meridian: Why Western-Style Prior Appropriation Would Not Fit the Eastern States,” will adduce arguments against such a borrowing.

21 See infra at QQQ. The standards’ elaboration and continued reliance on the idea of reasonable use are the principal doctrinal links of regulated riparianism to the common law riparianism it replaces.

22 See infra at QQQ.

23 See infra at QQQ.
with water as a flow resource that is subject to reuse, water management choices are not those of a zero sum game. Similarly, water uses, even the most important are somewhat elastic. The essence of management is to be able to make wise and predictable choices about how the water will be allocated and delivered under a variety of water supply scenarios.\(^\text{24}\) Computer science, weather prediction, and basin modeling techniques have improved to the point where many of the presently employed rule curves that are used to manage water control facilities relying solely on season, storage heights, and current flows are out of date and inefficient.\(^\text{25}\) Management now can be based on maximization of benefits to all management objectives,\(^\text{26}\) while still ensuring the most vital uses are protected, yet allowing many other uses to be optimized as well.

The second management topic canvassed in this section of the Article is an examination of the federal government’s very heavy-handed influence over water use through its operation and regulation of the control structures (primarily dams and reservoirs) that are critical elements in the physical side of water management. The third management topic is the geopolitical reality that the water courses being managed may be shared among states whose desired management objectives for the common resource are not always fully compatible, especially under shortage conditions where uses in one state might have to be curtailed to protect more highly preferred uses in another state.

With those additional issues of federal control authority and interstate waters in mind, the second section of the article continues by examining aspects of a small number of contemporary Eastern water disputes that are not well addressed by existing law, state or federal. The Article isolates aspects of the current Eastern laws and the surrounding institutional relationships that are wanting and begins the process of determining the elements needed for successful water governance. Those flaws that relate to poor state water management regimes are, as a legal matter, ones the states are capable of redressing if the political will to reform their water laws and water planning can be mustered. Reform of state law is underway in several states in the East, and is likely to accelerate if the federal government could be made more responsive to state prerogatives. Accordingly, far more emphasis is placed on the institutional and political mismatch between the states’ ability to fashion water policy, a traditional state police

\[\text{24}\text{ See generally, Lisa Bourget, ed., CONVERGING WATERS: INTEGRATING COLLABORATIVE MODELING WITH PARTICIPATORY PROCESSES TO MAKE WATER RESOURCES DECISIONS (2011).}\]

\[\text{25}\text{ For a very simple explanation of just one Army Corps of Engineers rule curve in action, see Lehigh Coldwater Fishing Alliance, Data and Information, available at http://www.thelehighriver.org/data.html.}\]

\[\text{26}\text{ The very complex topic of how management objectives are selected and balanced will be considered briefly in this section, and again in the section of how the recommended CZMA-like model would apply to a shared basin in which there is an apparent interstate conflict over management objectives. See infra at QQQ.}\]
power function, and the states’ ability to implement those policies.\textsuperscript{27}

Here is the mismatch – in times of stress, particularly under drought conditions, adapting water management to allocate water according to the states’ priorities often relies on operating dams and available control structures in a fashion at variance with the way in which the control structures are operated according to current federal operations manuals. In modern times the result is that most operational decisions are controlled by the federal government, either the Army Corps of Engineers (Corps) or the Federal Energy Regulatory Commission (FERC), neither of which are responsive to state prerogatives.

With the Corps, the contemporary variance is of historic origin.\textsuperscript{28} The Corps operates its dams in accordance with the purposes Congress set out for the dams, usually in authorizing legislation passed a half century ago when each dam was being funded and then built. Not surprisingly, the Congresses that long ago authorized Corps projects neither foresaw the far higher and more varied current levels of water use nor the impact on water supply associated with a changed climate. The operating priorities imposed on a structure-by-structure basis at the time of authorization and construction, have only rarely been directly revisited.\textsuperscript{29} FERC, similarly, has mandates relating to power generation, and its rulings on dam operations are viewed as preemptive of most competing state interests.\textsuperscript{30} At best, the states become supplicants trying to urge or compel (via indirect legal challenges to agency action) federal dam operations that comport with the states’ water management policies and allocation laws. This review shows that under current law there is absolutely no reason to think that the states will be successful in requiring that federal dam operations support the states’ water allocation and management laws. Except in cases of overriding national necessity,\textsuperscript{31} this


\textsuperscript{28} When built, in an era of less competition for water use in the East, the federal purposes were probably coincident with, or at least not antagonistic to any perceived state interests or state allocation policies. As a political matter, most pork barrel projects such as Corps dams, when built, had as one impetus local support for the project and the ways in which used the water.

\textsuperscript{29} 43 U.S.C.A. §390b(d). Cf., Jay M. Zitter, Construction and Application of the Water Supply Act 43 U.S.C.A. §390b, 48 A.L.R. Fed. 2d 289 at §4 (2010) (listing ACF as the sole example of subsection d in the courts). A search by the author was unable to find any federal legislation expressly referencing §390b and reallocation. Congress indirectly revisits allocations by passing more general legislation, such as the endangered Species Act, with which the federal agencies must comply.


\textsuperscript{31} A good example of national necessity is the need for the Corps of Engineers to make the very difficult decisions it made in Spring and Summer of 2011 about spilling water from the Missouri and Mississippi Rivers to protect population centers from flooding. That decision should be contrasted with the de facto water allocation decisions that are made by the Corps when it prescribes operating parameters for its
degree of federal dominance misplaces authority and undermines the traditional state police power authority over natural resources generally, and water in particular.

A short third section of the Article describes the basic framework of the Coastal Zone Management Act of 1972 (CZMA),32 and summarizes its perceived successes and failures. The premise of the section is that a similar law for Eastern states water basin management would correct the mismatch of water policy authority, which resides with the states, and physical water control structure operations, which are dominated by federal law, federal regulations, and federal agency decision making. The CZMA as a model embodies a quite different balance of state and federal authority than does the status quo. Under that model, once a state water management plan is approved by the program’s administering federal agency, all water uses must be consistent with the plan. That includes not only state authorized water users and uses, all federal actions affecting the resource must be “consistent” with the state plan. That includes dam and reservoir operations.

Requiring federal projects operate consistently with approved state water resource plans marks a substantial return of power to the states, yet does not undermine important federal objectives. The CZMA, and the law modeled on it here suggested, protects federal interests in at least two ways: before a state plan obtains force under the law, it is subject to federal approval. A state plan that trenches too deeply on vital federal interests will not be approved. So, for example, a state plan that insists on keeping reservoirs absolutely full in anticipation of high summer recreation demand, that totally forbids releases for federally authorized purposes such as hydropower or flood control would be unlikely to obtain federal approval. Second, the consistency requirement is firm, but not absolute. Both the CZMA and the recommended water law include federal administrative procedures through which a vital federal interest can be pursued in contravention of the consistency requirement. Once approved, a state plan becomes “federalized.” This is similar to an interstate compact, and makes the state plan more robust and reliable. The federally approved state plan cannot be unilaterally altered by the state, nor can it be ignored by the state or its governmental subdivisions, which too often have ignored the limitations of their own state water laws when the citizenry balks at water use restrictions or when developers apply political pressure for additional water-dependent development in contravention of a requirement found in many states that there be sufficient water reliably available to serve the needs of the project.

The final section of the article becomes more speculative and game-theoretic. Assuming that a CZMA-like statute were passed governing water resources, will the states and the facilities, such as in the Missouri River Master Manual. See infra at QQQ. See also Sandra Zellmer, A New Corps of Discovery for Missouri River Management, 83 NEB. L. REV. 305, 324-33 (2004).

federal government be willing to “play”? Will states adopt regulated riparianism and propound strong state water plans? Will state plans that embody state priorities win federal approval and with it a renunciation of significant portions of the current authority of the Corps and FERC over the water allocation affecting aspects of dam operations? How will interstate disputes be treated by the system?

The Article argues that Congress should see a law embracing this power relationship as consistent with long-prevailing congressional views on federalism and preserving state police power health and welfare prerogatives. Congress can hardly see this as a threat to supervening national interests. Not only does the law contain federal safeguards such as federal plan approval and federal exemptions in exigent circumstances, Congress can fix any problems it perceives, whether on a facility, basin, or overarching level, with ordinary legislation that has the Supremacy clause behind it. The states gain control over previously independent federal dam operations and dam regulation that has proven antagonistic to state water allocation objectives. That is a huge benefit, but it needs to be in order to overcome the political stigma of having to surrender state sovereignty in the form of having to obtain federal approval for state plans. That benefit also must be large enough to overcome the consequence that states must themselves follow their approved plans.33 In power terms, if there are “losers” they would seem to be the Corps and FERC, who have largely enjoyed insularity from state control.34 To many observers, this is not an untoward development: the Corps’ anachronistic and facility-specific authorizations and priorities for operations laid down by Congress half a century ago when the contemporary development and climate change affected water reality were not foreseeable are unresponsive to contemporary water needs.

To complete the inquiry, this last major section of the Article returns to the acrimonious, high-visibility setting of interstate water wars. How will this system address interstate rivers? The experience with the CZMA, although limited in this regard, is that the consistency requirement of a federally approved state plan has the equivalent of extra-territorial effect.35 In the water context, the extra-territorial effect that accompanies federalization of an approved state plan affecting an interstate basin means that the

33 In the eyes of this author, that is a major benefit, but to state officials, it may be seen as limiting their discretion.

34 A significant exception to that federal independence is embodied in the Clean Water Act, §401 pursuant to which states must certify that federal actions are consistent with state water quality standards. See, e.g., Pud No. 1 v. Wash. Dep’t of Ecology, 511 U.S. 700 (U.S. 1994).

35 The case most closely on point is City of Virginia Beach v. Brown, 858 F.Supp. 585 (E.D. Va. 1994) which involved the small handle effort of North Carolina to block an interbasin water transfer by asserting inconsistency with its approved CZMA state plan due to spillover effects of a FERC licensed project located wholly in another state. Cf. Arkansas v. Oklahoma, 503 U.S. 91 (1992) (state water quality standard of downstream state is permissibly included in an EPA-issued NPDES permit that thereby gives the standard extra-territorial effect).
plan approval process may become a contest among the competing states with the federal decision maker acting as a de facto arbitrator whose decision about plan approval will resemble a binding interstate water allocation.\textsuperscript{36}

The Article is very hopeful here. The fact that the plan-authoring state must also subject its water users to the rigors of the plan, should eliminate some of the most egregious efforts to use the plan to disadvantage a sister state. If the CZMA-like law has sufficiently strong standards for plan approval, and those standards require fair treatment of sister state interests,\textsuperscript{37} or consistent treatment of similar water using activities, the plans proposed cannot overreach through unequal respect for uses of water in other basin states. Similarly, if two basin states propose inconsistent plans that each unfairly impacts the other basin state, the federal decision maker will be forced to insist on harmonization of the plans, or modification of one or the other to the point where the interstate allocation passes muster as fair in the eyes of the federal decision maker. Moving back to the more theoretical level, if basin states realize that the plan approval process is a de facto adjudication of their competing interests, they may be more willing to negotiate with one another in good faith on a joint basin plan.\textsuperscript{38} The CZMA-like law also could reduce interstate conflict in a different way, by imposing some substantive water allocation requirements applicable to interstate basin plans. The commerce clause empowers Congress to impose some general rules for interstate basins, such as erecting a presumption that plans must include a preference in favor of water for population security first and water for ecological security second. With just those two preferences in place, many of the acrimonious disputes of Eastern lore are largely resolved.\textsuperscript{39}

\textsuperscript{36} The allocation is dynamic, i.e., responsive to conditions and what uses are to be affected, rather than a fixed division of water on a quantitative basis.

\textsuperscript{37} As an example, theoretically good, but problematic in practice due to the very limited way in which it has been used, under §110 of the Clean Air Act, the Environmental Protection Agency cannot approve a State Implementation Plans of one state that prevents attainment of the National Ambient Air Quality Standards by a downwind state.

\textsuperscript{38} The thrice failed ACF negotiations always lacked the proper incentives to obtain agreement. See, infra at QQQ. Faced with the prospect of plan approval of the other state’s plan, and fear of rejection of an overreaching plan at play, in the context of a forthcoming plan that will bind both states, there is a strong incentive to bargain in good faith on both sides. In a setting that strongly resembles a binding arbitration, neither party can afford to insist on unreasonable positions. See, e.g., C. Hansell Watt, IV, \textit{Who Gets the Hooch?: Georgia, Florida, and Alabama Battle for Water From the Apalachicola-Chattahoochee-Flint River Basin}, 55 MERCER L. REV. 1453 (2004).

\textsuperscript{39} Before partisan opponents of Atlanta in the ACF controversy get too enraged and stop reading at this point, please remember that water for population security does not include landscape irrigation and in time of extreme shortage, even allocations for population security would be reduced to reflect savings made possible by very aggressive conservation requirements. People in population centers and the economic activity that they rely upon for their livelihood, consume very little water. Since balancing is involved, and this is not a zero sum game, giving municipal use preference might actually improve the
Creating an atmosphere that encourages state water law reform and careful state water allocation planning, and then commandeers federal cooperation as a means to effectuate it, would mark a monumental improvement in the direction Eastern states water management is trending at this time. Expecting all of those steps to be taken is, no doubt, highly optimistic. Nevertheless, efforts to move in that direction should have adherents in many quarters, especially among the states and their water users who need to know exactly how they will be treated as increased demand and climate change conspire to undercut whatever feeling of water security they may have enjoyed in an earlier era. Congress, too, might be pleasantly surprised to find by passing CZMA-like legislation for Eastern states water management, it can assist in avoidance of protracted Eastern states water wars without becoming directly involved in any one of them.40

II. Regulated Riparianism and the Management of Water: Key Values to Protect and Problems to Solve

There is nothing new in treating water management as one of the major ends of societal governance.41 Water law has deliberately been crafted to support a society’s most vital uses of the water. This instrumentalism is well-demonstrated in regard to the development of water law in the United States, where water law changes, even radically, to support urgent societal demands for its use. This was true in the early rejection of English natural flow riparianism by the East coast and New England states in the 18th and early 19th Centuries,42 and was true of the Colorado Doctrine’s rejection of riparianism as a starting point for assigning water rights during the settlement period in the arid intermountain West.43 Contemporary societal imperatives, equally, can justify a wholesale shift in Eastern states water law, from reasonable use riparianism and ineffective alternatives to a regulated system that proactively allocates water to potential users and adjusts those allocations in the event of drought or other critical

Corps’ ability to manage the river for needed ecological flows because large amounts of power peaking releases from the upper reaches of the system would be foregone in favor of storage to maintain steady flows that Atlanta requires even in times of severe drought.

40 On the ACF, as things presently stand, the most recent decision has forced Georgia to seek specific legislation authorizing a change in Corps operations of the Buford Dam and its reservoir, Lake Lanier, to ensure more of that pool is managed to meet the water needs of the Atlanta metropolitan region. See infra at QQQ.

41 In his book Oriental Despotism (1957) that is controversial in other regards, Karl Wittfogel described the totalitarian ordering of great pre-industrial societies as driven by the need to manage the water resource to ensure what this article would refer to as population and food security.


changes in the supply and demand functions. The real issue requiring exploration is not that water law can be changed, the real issue lies in identifying the societal imperatives necessitating change, what water uses must take precedence to effectuate those imperatives, and then identifying the revisions in law and institutional governance that will do the job.

The East is facing an impending water management crisis. Neither the Eastern states nor the federal government, at present, manage the East’s water resources in an effective manner. Rather, the states and instrumentalities of the federal government (primarily the Army Corps of Engineers (Corps)) take numerous largely independent and uncoordinated actions that affect how the water resource is used. With a small number of exceptions at the basin level and at the state level, it is impossible to mistake what actually goes on in most of the East for comprehensive water management. While some states, Florida in particular, have very promising laws on the books, the implementation of those laws has shown little management and considerable reluctance to execute the plans and take key managerial steps “required” by the law’s overall design.

---


45 The Delaware River Basin Commission and the Susquehanna River Basin Commission are the two best known examples of basin management. These river systems are of an interstate character and their commissions and the powers granted to the commissions, derive from interstate compacts. See Delaware River Basin Compact, 75 Stat. 688 (1961), which served as a model for the Susquehanna River Basin Compact, 84 Stat. 1509 (1970). As described infra at QQQ, the federal law authority that attaches to actions taken by the commission structure is very important to its effectiveness.

46 The Great Lakes states have recently entered into an interstate compact that requires them all to employ parallel regulatory standards and policies in regard to Great Lakes waters. This very interesting form of horizontal federalism shares some similarities with the type of planning advocated in this article. See Great Lakes-St. Lawrence River Basin Water Resources Compact, Pub. L. No. 110-342, 122 Stat 3739 (Oct. 3, 2008). Additionally, a number of Eastern states have established a framework that would support rigorous water management. See Jeremy Nathan Jungreis, "Permit" Me Another Drink: A Proposal for Safeguarding the Water Rights of Federal Lands in the Regulated Riparian East, 29 HARV. ENVTL. L. REV. 369, 371 (2005) ("Twenty eastern states now impose some form of regulated riparianism ....").

47 See Robert Abrams, Correcting Mismatched Authorities: Erecting a New Water Federalism, 25 NATURAL RESOURCES & ENVIRONMENT 22 (2010). A few Eastern states are moving in the direction of potentially effective management. See Jungreis, Supra note QQQ.

48 Florida Water Resources Act of 1972, which is codified at FL. STAT. ANN., chapter 372.

49 See CYNTHIA BARNETT, MIRAGE: FLORIDA AND THE VANISHING WATER OF THE EASTERN UNITED STATES (2007). The “mirage” is, in part, the presence of a potentially effective regulated riparianism statute based on the Model Water Code (see supra at QQQ) that has been on the statute books since 1972. The halting
The explicit operative premise of this Article is that the American East is experiencing an increasingly complex competition for water use that currently is being addressed by a water management system conceived of in an earlier era to address a far simpler array of uses with a water supply and water facilities infrastructure that was usually adequate to satisfy all needs. That management structure, dominated by decades old mission-specific dictates for major water control facilities, is insufficiently holistic and adaptive in its approach to effectively address contemporary management objectives, now including time- and place-based requirements for ecological integrity and economically significant water-based recreation. Moreover, these additional management objectives arise on the top of the realization that water managers are coping with changed hydrologic conditions. A different water management regime is necessary to meet the East’s present and future.

A second premise of the Article relies on the belief that some water allocation and use outcomes are preferable to others including outcomes obtained by the status quo in the East. That assertion is value laden in several regards. Measuring what outcomes are better than others requires an evaluative frame of reference that asserts as a normative matter what water allocations are most important to society. This Article adopts as a normative point of reference a construct of water security to protect concentrated populations, ecosystems, energy needs, and food production in roughly that order. The selection of those management objectives, assessing their relative importance, and determining how they should be balanced in any particular basin, is beyond the scope of this Article. What is important, however, is that the idea of water security, backed by a general categorical preference is not the same as requiring that each category gets all that it wants regardless of the impact on other uses, even those beyond the hierarchy. Instead, the goal of management should be to balance those and other water uses to provide maximal benefits, keeping in mind that if curtailments are required, some uses have to be protected at essential levels before others. Water management, as that term is used here, relies on largely transparent considered judgments about how balances among announced management objectives are to be struck across the increased range of water supply scenarios that lie. The governing arrangements of water law, as set out in this Article, are meant to be the instrument that supports the type of water management necessary to meet the East’s needs now and in the decades to come.

Somewhat more subtly, having a management system implies that there is (and ought to be) a decisional body entrusted to do the managing. With regard to the water

---

steps, for example, include the failure over more than three decades to set minimum levels and flows for most of the state’s waters. See also, Christine A. Klein, Mary Jane Angelo, & Richard Hamann, Modernizing Water Law: The Example of Florida, 61 U. FLA. L. REV. 403 (2009)

50 A more complete explication of this hierarchy appears in Robert Abrams & Noah Hall, Framing Water Policy in a Carbon Affected and Carbon Constrained Environment, 50 NATURAL RESOURCES LAW JOURNAL 3, 5 (2010).
resource, most of which is both a common pool and a cyclical flow resource that crosses property and geopolitical boundaries, there are many entities and individuals who assert a right to participate in or control that management process. Assigning decisional authority, therefore, is an intensely contentious matter. American federalism and models of governance are sufficiently flexible to offer an array of permissible power allocations. Thus, making a good choice in assigning decisional authority should be influenced by the water outcomes one is hoping to achieve. With an instrumental goal of maximizing the benefits from the water resource complex, the decisional process must be inclusive, rather than insular or mission-driven, suggesting that the states as the traditional authority over the resource, who are in closer touch with and politically responsible to their water users should have a prominent role in water management. At the same time, since there are national interests also in play, the decisional process cannot be one that fails to take cognizance of federal interests. Once those choices are made, there needs to be an adequate infrastructure and control system to implement the desired water allocations on the ground.51

A. Water Security: The Role of Hierarchical Values for the Use of Water

At present, the most imperative water needs of the nation can be prioritized in relation to securing various uses in a hierarchical order.52 The first order use is water to ensure population security – the water people need to live and support themselves economically53 in concentrated areas.54 The United States is increasingly urbanized and the vast majority of economic activity that supports its people and their welfare occurs in urban areas.55 Comparatively speaking, little water is needed to provide for population security.56 Population security also requires management provisions that

51 The prospect of managing a system as powerful and complex as a region’s hydrologic resources bespeaks an astounding level of both hubris and technological arrogance that is not supported by either present levels of scientific precision in understanding the resource and physical ability to control the water. Nevertheless, there is a great deal that can be said and done to implement sound water management principles in the East without transgressing those limits of knowledge and physical control.


53 The idea of population support includes water for household use, and industrial and commercial use that provides economic sustenance for the people living there. It does not include water for excessive residential or recreational irrigation, and, of course, the amounts subject to the use preference should be minimized by sound conservation measures.

54 In the United States most dispersed populations rely on tiny amounts of self-supplied groundwater withdrawals and, if groundwater were not available, there would not be serious social dislocations if those areas did not support people. Indeed, it seems quite likely, if the water is not present and available, the people would not be there to begin with.


address flood control, which may place some limitations on choices relating to dam and reservoir operations.57

The second order use is water for ecological security. The collapse of ecosystems from dewatering or water resources mismanagement carries devastating and often irreversible costs, whether the example is the Owens Valley in California, the devastation of the Everglades that now threatens the ability of Florida to meet its freshwater needs for population security, the loss of species, or saline intrusion into coastal aquifers. Increased understanding of the immense value of “natural capital” and ecosystem services58 adds a complementary quantitative justification for the high priority assigned to ecological security.

The third order use is water for energy security. Water resources are intimately linked to energy production, a nexus that is increasing as the nation attempts to combat its dependence on insecure foreign sources of oil and reduce its production of greenhouse gasses. Whether it is cooling water, process or production water, or hydropower,59 almost every major energy source uses vast quantities of water in its fuel and/or generation cycle.60 Water for energy security also ranks this highly on the list because of the linkage of energy policy to national security and the unreliability of foreign energy sources.

The fourth order use is water for food security. Roughly 85% of the water consumed in the United States is for irrigated agriculture,61 but this is, comparatively, a very low

57 High water scenarios that must be addressed for flood control are unlikely to arise contemporaneously with the need to manage drought and other shortage scenarios. Even so, the need for flood control storage capacity based on the increasing uncertainty of precipitation patterns must be factored into any management plan.

58 A more comprehensive catalog of the values of ecosystems is found in an extensive literature surrounding ecosystem services and natural capital. See, e.g., J.B. RUHL, STEVEN E. KRAFT & CHRISTOPHER L. LANT, THE LAW AND POLICY OF ECOSYSTEM SERVICES (2007); Robert Costanza et al., The Value of the World’s Ecosystem Services and Natural Capital, 387 NATURE 253 (1997).

59 Almost paradoxically, with the possible exception of the Northwest, hydropower is not a particularly important consideration in the water for energy security context. Once the storage facilities are in place with generating capability, facility management directly affects the timing of hydropower generation, and thus its economic value (peak vs. off-peak releases), but in almost all instances, that peaking power can be replaced by alternative albeit more costly sources. The Buford Dam/Atlanta example, discussed infra at QQQ is a perfect example of the ease of substitution.

60 This linkage of water and energy security is explored at length in Abrams and Hall, supra note QQQ.

61 See Wayne B. Solley et al., Estimated Use of Water in the United States, 1995 U.S. Geological Survey Circular 1200 at page 19 fig. 7 (USGS 1998), available at http://water.usgs.gov/watuse/pdf1995/html. The 1995 data is offered since that is the last of the five-year USGS water use estimates that compiled figures for both withdrawal and consumption of water. More recent reports include only withdrawals. Wind, some forms of solar, geothermal, and tidal energy, to name a few, have smaller water footprints, but even under Cornucopianist scenarios, those sources are unlikely to produce a large percentage of base
value use of the water. Other than water for drinking, food is perhaps the most essential item to survival, but unlike most past and many present societies, the United States has a land and climate base and food distribution infrastructure that permits it to shift food production away from water stressed regions to humid regions where dry land farming is feasible, or locales where minimal irrigation can greatly increase crop yields.

There is one potentially widespread exception to the ranking of the third and fourth priorities – water to support dairy herds and other livestock and agricultural stock, such as nut or fruit trees should be ranked ahead of water for energy security. These types of food producing assets are rather plainly different in kind than row crops in the relationship they bear to long term economic productivity. Unlike a single year’s crop the loss of which is a temporary event, after which the principal assets of land and equipment remain, the livestock or fruit trees are themselves a capital asset that will be lost without water for too long a period of time. The amount of water needed to avert loss of livestock and perennials is a very small fraction of the immense consumption of water by agricultural use.

The hierarchy stops with the four securities – population, ecologic, energy, and food. Other water uses, such as navigation and recreation, are important, but not on the same plane as the four securities and are still capable of considerable protection in a state water management plan. Recreation and navigation often are supported by the presence of the water in place that is protected in the hierarchy as part of ensuring ecological security. Flat water recreation often will benefit by having water held in storage in summer to provide secure municipal supplies. All benefits from the use of load electricity or transportation energy in the next fifty to one hundred years.


64 Increasing the preference for livestock and agricultural stock is analogous to protecting the means of livelihood for concentrated populations.

water should figure in the balance, as should all costs.

Establishing a hierarchy, this one or any other, is not the end of water management decision making. The hierarchy is a backstop that limits discretion, not a barrier that prevents balancing. One reason is that the cost of shortage to each different sector is not linear. Even concentrated populations in major cities can have their supplies sharply reduced for a day or two without major economic dislocation. Depriving a city of most of its water for a week, however, would be calamitous. A second reason is that levels of security need to be considered in relation to the trade-offs. For example, setting triggers that require reservoir releases to protect ecological instream may mean that a municipality cannot rely on the water that otherwise would remain in storage if a less aggressive trigger was used. If estimates were that the trigger would be reached for 3 to 4 weeks over a 70-year period, would it make more sense for a city having no other source of water to have to build two 70-mile pipelines to import water if the reservoir releases had to be made or to allow a lower instream flow for those few weeks over that time horizon? Similarly, common sense has a large role to play, placing some restrictions on irrigation, a large volume, highly consumptive, relatively low value use, during a period of shortage, might ensure water availability for navigation and recreation without any effect on production of food for the nation’s needs.

Finally, it is worth considering the role that should be played by conservation in a more managed water regime. Frank Herbert’s science fiction series of books, The Dune Trilogy, was set on the desert planet of Arrakis. The hyper-extreme aridity of that planet’s climate led to the imposition of the most extreme examples of water conservation and recycling imaginable. The lesson of those examples for present purposes is that conservation can make a very small amount of water go a very long way if society demands it and invests in it. More pragmatically, requiring water saving practices within the economic reach of water users in the preferred categories can reduce aggregate water demand and use, thereby leaving water available for uses further down the hierarchy. For example, concentrated populations can conserve with low flow plumbing fixtures, reducing landscape irrigation, and using recycled water for things such as car washing. Power plant cooling with closed loop systems reduces water withdrawals by amounts ranging from 60% to 90% depending on the particular technology used, and the increasing use of closed loop cooling has already reduced

66 Atlanta prepared such a study in relation to the possibility of losing large portions of its water supply. See, QQQ[get from Tremaine Reese].

67 On roughly those facts, the State of North Carolina granted a waiver from such releases in favor of the City of Rocky Mount. See, QQQ[get cite from Dan Sheer].

68 The curtailment can be accompanied by compensation to those affected, although under regulated riparianism irrigators’ permits might specify the possibility of curtailment under shortage conditions, which would undercut claims of a taking of property, but not necessarily undercut the policy choice to have higher value water users pay into a fund from which compensation could be issued.
withdrawal rates per kilowatt hour of generation by more than 60% since 1950.69 Closed loop cooling, however, increases water consumption rates as much as tenfold, from a very small percentage to as much as 70%.70 Drip irrigation is 25% more efficient than flood irrigation.71 A well-conceived management plan should include a heavy dose of conservation, especially in regard to both urban and agricultural irrigation.

There are, however, managerial benefits to not going to Dune-like extremes as the invariable level of water-saving practice, particularly in what is usually a humid region. The most obvious one is the expense of those measures if they are not necessary to ensure that all uses have sufficient water in most climate scenarios. More subtly, conservation measures that can be imposed on short notice add a bit of a safety valve to the system – a way to suddenly reduce usage without curtailing the activities making the use. An economist might say long-term mandatory conservation hardens short-term demand, by taking away options that otherwise could be implemented to save water in exigent times.72 Politically, in terms of making the system and its operation palatable for the users, the degree of long-term conservation required needs to be a function of (1) the macro water balance expected (is long-term conservation necessary to avoid frequent shortages), (2) cost of conservation, (3) the desirability of having unused conservation savings available as a way of addressing extreme shortage conditions and (4) limiting the severity of the practical impact on affected water users. On that understanding, sound conservation practices should be a part of the Eastern system, but their stringency is a matter for basin-by-basin determination.

B. Regulated Riparianism as a Workable Water Law for the East

For the East, the emerging water law system of regulated riparianism, in addition to the traditional standard of reasonable use, relies on permits, preferences and on-going allocation of water in the public interest as central features. The most thorough

69 Id. at 42-43.


72 Charles Howe & Christopher Goemans, Manager to Manager – The Simple Analytics of Demand Hardening, JOURNAL OF AMERICAN WATER RESOURCE ASSOCIATION, October 2007
explication of regulated riparianism is the Regulated Riparianism Model Water Code that was propounded in 1997 by the American Society of Civil Engineers (ASCE) in a project led by Professor Joseph Dellapenna. That code has antecedents in a previous Model Water Code and state enactments of varying completeness that date back as far as the mid-1950s. This Article will look to the ASCE Model Code for examples of specific provisions.

The foundational elements of regulated riparianism begin with its integration of ground and surface water into a single, hydrologically unified permit system that relies on carefully delineated, temporally limited, water use permits that may be the subject of conditions and limitations on the use made. Although population security as that term is used in this Article is not expressly made a preferred use by the Model Code, direct human consumption is the most preferred use, and preserving the means of production and maximizing employment are the next most preferred categories.


74 FRANK MALONEY, RICHARD AUSNESS, & J. SCOTT MORRIS, A MODEL WATER CODE (1972). This Model Code had many of its roots in the Model Water Use Act drafted by the Commissioners on Uniform State Laws that formed the basis for the earlier comprehensive statute enacted by Iowa. See IOWA CODE ANN. § 455A.20 (Supp. 1971).

75 See Model Code, supra, listing 18 states which had at least some regulated riparianism provisions in place as of 1993 in its Preface at page xi. One of the leading examples of a state code is the Florida Water Resources Act of 1972, FLA. STAT. ANN., Ch. 373.

76 The ASCE model code has three advantages as an exemplar. First, it had the benefit of 30 to 50 years of experience under the two previous codes as implemented by Iowa and Florida as well as less comprehensive developments in seventeen other states that could be woven into its provisions. Second, the ASCE model code is a unitary document, whereas the Iowa and Florida laws have been through several rounds of amendment and, to some ways of thinking, ill-considered political compromises. Third, the ASCE model code more completely considers the impending stresses of increased competition for water brought on by the greater management sophistication needed to account more fully for ecological values and the loss of stationarity.

77 Model Code, §3R-1-03.

78 Model Code, §7R-1-01.

79 Model Code, §7R-1-02.

80 See generally, Model Code, §7R-1-01(l). See also, Model Code §§7R-3-01 through 7R-3-07.

81 Model Code, §6R-3-04(1)(a).

82 Model Code, §6R-3-04(1)(b and c). Subsection b, however, suggests a slightly different set of priorities than those advocated in this Article, that includes ensuring the “survival or health of livestock and to preserve crops or physical plant and equipment from physical damage or loss in so far as it is reasonable to continue such activities in relation to particular water sources” before subsection c that addresses water use to “maximize employment and economic benefits ….” The principal point, however, is that preferences are an integral aspect of regulated riparianism and easily adjusted to meet a state's specific
The Model Code also provides ecological water security by setting minimum levels and flows in addition to inserting conditions in permits.\textsuperscript{83} Professor Dellapenna has summed up numerous additional features of existing regulated riparianism statutes that are already in force in parts of the East and the ASCE model code as follows:

[Regulated riparianism’s] extensive statutory requirements are based on a state’s police power to regulate water withdrawal and use in order to protect the public health, safety, and welfare. Still, fear of the political (if not the legal) repercussions of such radical interference with traditional water rights has led many state legislatures to exempt from the permit requirement some large classes of users (usually agricultural) who were using water when the new statute came into effect. This introduces a significant temporal element. A more sophisticated solution to this problem is to guarantee existing users an initial permit, thereafter subject to renewal on the same terms as any other permit. This approach limits the temporal preference to a single permit cycle. Users who refuse to apply for a permit within a short period of time can then be conclusively presumed to have abandoned their claim.

Regulated riparian statutes create mechanisms for long-term planning and otherwise provide for the public interest in the waters of the state. One of the major purposes of regulated riparian permits is to assure the gathering of the necessary information to enable such planning to occur on an on-going basis. The Model Water Code would establish a particularly comprehensive statewide data system. The administering agency is usually given broad discretion to plan for and to deal with crises brought on by extreme water shortages. The agency can incorporate permit conditions based on its plans. The administering agency also is often authorized to restrict uses should the agency’s plans prove inadequate to an actual shortage notwithstanding any inconsistency with a permit. [footnotes omitted]\textsuperscript{84}

Regulated riparianism is free of the hard-to-change patterns of water use enshrined by granting perpetual rights, such as those created by the West’s reliance on seniority of appropriation, as the means of providing security of right. Instead, regulated riparianism implements a state’s water policy and allocation choices on a continuing basis. In addition to injecting the state’s policy preferences into initial permit granting, under regulated riparianism, each time a permit expires, the state is in a position to

\textsuperscript{83} Model Code §1R-1-11.

\textsuperscript{84} Joseph Dellapenna, The Law of Water Allocation in the Southeastern States at the Opening of the 21st Century, 25 U. ARK. L. R. L. REV. 9, 35-36 (2002). That passage is preceded by a passage that explains the many means of enforcement that are included in the Model Code. Id. This is important to later discussions of the need for state water plans to be enforceable, not merely hortatory. See infra at QQQ.
reallocating water according to its plan which may result in a failure to continue the prior use or in a reduction of the amount permitted. The state, thus, remains in a position to ensure that the public interest in the water is considered and reconsidered in an ongoing way. The Model Code also leaves room for market forces to influence shortage outcomes. Although the Model Code does not endorse water banking per se, it does provide favorable treatment for non-mandatory conservation, and provisions could easily be added allowing the state’s operating agency to broker a program in which users voluntarily forego use in a shortage time in exchange for a payment so that the water can be made available to an otherwise restricted user who is willing to pay a premium to be able to continue use.

III. Federalism Complications

The American federal system is among the most enduring structures in modern political history and, likely, at least a portion of that longevity is linked to the fact that it has established a nuanced and evolutionary relationship of the states and the national government. This section of the Article presents an overview of the history of water federalism in the United States and argues that the historic role of the states as the resource manager responsible for the water law that in turn determined water allocation should be reinvigorated and better balanced with federal programmatic interests. The 20th century saw a marked shift in power away from the states and to the national government. Although the Supreme Court in California v. United States and Congress in §401 of the Clean Water Act have empowered the states in some contexts, the overall balance of actual control of water remains heavily federalized.

The primary source of federal dominance emanates from the several federal roles that give the national government a dominant role in how major water control facilities (primarily dam and reservoir systems) are operated. The most obvious situation in the East, is the extensive presence of water control structures built and operated by the Army Corps of Engineers (Corps). Less apparent, but also dominant, is the role of the Federal Energy Regulatory Commission (FERC) in its regulation of releases of water from hydropower dams. When water is scarce, the operation of those facilities plays a supervening role in water allocation.

There is an inexorable constitutional logic here that supports federal power and control. Corps dams built pursuant to the power to tax and spend for the general welfare (flood

---

85 Model Code, §7R-3-06.
88 In the West, the federal Bureau of Reclamation would, of course, be a prominent federal water control player due to its role in the vast irrigation projects operated under the Reclamation Act of 1902 and other legislation such as the Central Arizona Project Act.
control and other public benefits), or the interstate commerce interest in navigation, and FERC regulation of hydropower, all are activities that undoubtedly fall within Congress’ Article I powers, most prominently being matters affecting interstate commerce, including navigation.89 Under the Supremacy Clause,90 within its enumerated sphere of constitutional competence, what the national government insists upon, the national government gets. Thus, the federally operated facilities of the Corps, and the private hydropower facilities operated by FERC licensees, store and release water pursuant to federal, not state, dictates. Nevertheless, and in contrast to those federal interests, in regard to the water itself and its allocation and management, there are consistent themes ascribing principal authority over water resources, for most purposes, to the states.

A. Putting the States Back In Charge (Primarily)

Placing the predominant authority over water use at the state level comports with the history and structure of governance in the United States. At the founding of the nation the several states became the successor sovereigns to the British Crown and took on the trust responsibility over natural resources91 and the mantle of the police power to regulate for health safety and welfare. In that role property law and the law defining rights to use water have always resided with the states and not the national government. State water law, in virtually all states, treats the resource as belonging to the state and the state’s water law creates and allocates rights of use of the waters.92 Those state powers were not surrendered in the framing of the Constitution, except to the extent that their continued exercise would be inconsistent with a power expressly granted to the national government.93

This understanding is fully represented in opinions of the United States Supreme Court throughout American history, but is most explicitly set forth in cases where Western states formed out of the federal lands of the public domain changed their law to prior

89 The interstate and international commerce powers combine in support of the authority over navigation that Congress has delegated to the Corps.

90 U.S. CONST. art. VI.

91 The doctrine in this nation is quite clear that the states took on this aspect of sovereignty and did so as a trust responsibility. See, e.g., Illinois Cent. R. Co. v. Illinois, 146 U.S. 387 (1892).

92 The United States Supreme Court very recently reiterated this understanding in deciding an interstate compact case in which the compact in question referred to the law of prior appropriation:

“Yet, because the Compact references and the parties direct us to principles of appropriation doctrine, we find ourselves immersed in state water law. Our assessment of the scope of these water rights is merely a federal court’s description of state water law.”


93 U.S. CONST. amend. X.
appropriation and claims to water were made by riparians. In United States v. Rio Grande Dam & Irrigation Co., the Court first noted that the traditional rights of a riparian proprietor in this country were usufructuary in nature and based on the common law of riparianism, the several states (and their predecessor territorial governments) were the authorities having the power to change water allocation law:

While [the background common law riparianism] is undoubted, and the rule obtains in those states in the Union which have simply adopted the common law, it is also true that as to every stream within its dominion a state may change this common-law rule, and permit the appropriation of the flowing waters for such purposes as it deems wise.95

The Court did make clear that the power of the states over water law was not unfettered, the superior powers of the federal government imposed limitations:

First, that, in the absence of specific authority from congress, a state cannot, by its legislation, destroy the right of the United States, as the owner of lands bordering on a stream, to the continued flow of its waters, so far, at least, as may be necessary for the beneficial uses of the government property; second, that it is limited by the superior power of the general government to secure the uninterrupted navigability of all navigable streams within the limits of the United States.96

The first of those two limitations presaged the reserved rights doctrine, which would find voice in Winters v, United States, nine years later and is of little consequence for Eastern states water management. In the East, federal reserved rights are not significant due to the relatively small number of federal enclaves and the very modest water demands that those federal lands might make that are necessary to fulfill the primary federal purposes for which the lands are set aside.98 Water to support federally sanctioned navigation is an area of potential conflict between a state water management plan that calls for consumption of water or holding water in reservoirs to the detriment of downstream navigation. As discussed more fully below, this is an area where this

---

94 174 U.S. 690 (1899).
95 Id. at 702-03.
96 Id. at 703.
97 207 U.S. 564 (1908).
Article’s proposed changes would alter the status quo in the event of a conflict— the state plan, if it was approved, would be controlling over the Corps’ traditional navigation authority. The means of vindicating the federal interest in navigation, if it were not recognized and accounted for by the states, would instead fall to a non-mission-driven federal agency assigned a role in approving state water plans, the President, or Congress.

Paralleling the words of the Court, Congress also overtly respected the allocation of authority that places the paramount power over water use in the several states. There has never been federal legislation that seeks to establish a national water law or even a national water policy. In the 19th Century, Congress drafted its land disposition laws in a manner that permitted flexibility to the states in establishing water allocation law. Several Western states used that flexibility and established prior appropriation as their water allocation law. Eventually, this led to challenges by land patentees who claimed riparian rights in virtue of former federal ownership of the lands and the fact that the federal government had not renounced the common law of riparianism. Although somewhat after the fact, the United States Supreme Court, in California Oregon Power Co. v. Beaver Portland Cement Co., put an end to those arguments by finding Congress had “severed” the water from the land it was granting and patentees of those lands would have to look to state law for their water rights. The recognition of state authority could hardly be plainer:

What we hold is that following the act of 1877, if not before, all nonnavigable waters then a part of the public domain became publici juris, subject to the

99 The principal reason for not according invariable preference to federal navigation interests that other modes of conducting commerce, air, rail, vehicular, and pipelines, have lessened the importance of water transport other than ocean going vessels. Only a very few, if any, of the nation’s interior freshwater waterways that could conceivably be so water short as to fail to continue to support navigation could not be dispensed with as means of carriage in times of severe water shortage.

100 See infra at QQQ.

101 There has been a National Water Commission which published a Final Report in 1973. No legislative action followed. This is so sensitive a subject, that even when calling for federal commissions to study water issues, members of Congress are careful to disclaim any intent to displace state authority. For example, in 2008 a bill, HR 135 entitled, “A 21st Century Water Commission,” was introduced. Rep. John Linder stressed that it is important to remember that this Commission will not create a national water policy. States will make their own water policies, but they will have access to the right data, innovative strategies, and incentives to do that. The Commission is designed to provide them those tools.


This effort only cleared committee. See http://www.govtrack.us/congress/bill.xpd?bill=h110-135

102 295 U.S. 142, 162 (1935).
plenary control of the designated states, ... with the right in each to determine for itself to what extent the rule of appropriation or the common-law rule in respect of riparian rights should obtain.\textsuperscript{103}

Early in the 20\textsuperscript{th} Century, however, the first real seeds of conflict between federal law and state control over water allocation were planted when Congress more aggressively employed its interstate commerce power to develop major programs of national scope that required the use of water. The two programmatic laws having that potential were the Reclamation Act of 1902\textsuperscript{104} and the Federal Power Act of 1920.\textsuperscript{105} Facialiy, at least, Congress included in each express provisions that deferred to state law controlling water rights.\textsuperscript{106} In practice, however, with the benefit of hindsight, conflict was inevitable and the structural constitutional argument based on federal supremacy was a powerful one, even in the face of the provisions protecting state water law. Unless the state law savings clauses are read narrowly as limited to respect for the property rights aspect of state water law, granting primacy to the state’s choices for allocation of the use of the water, would often interfere with projects specifically authorized by the federal agency, at times including projects authorized with the direct involvement of Congress. When conflicts arose with the supreme federal authority asserted by the federal project agencies, the courts throughout much of the 20\textsuperscript{th} century opted for the narrow interpretation of the savings clauses and sided with the federal government.\textsuperscript{107}

In the reclamation area, the savings of state law and vesting of control over the water in the states made a comeback.\textsuperscript{108} In California v. United States,\textsuperscript{109} which involved the

\textsuperscript{103} Id. at 163-64. See also, A. Dan Tarlock, LAW OF WATER RIGHTS AND RESOURCES §5:9.

\textsuperscript{104} 32 Stat. 390 (1902).

\textsuperscript{105} 41 Stat. 1077 (1920).

\textsuperscript{106} See §8 of the Reclamation Act. It states:“[N]othing in this Act shall be construed as affecting or intended to affect or in any way interfere with the laws of any State or Territory relating to the control, appropriation, use, or distribution of water used in irrigation, or any vested right acquired thereunder, and the Secretary of the Interior, in carrying out the provisions of this Act, shall proceed in conformity with such laws, and nothing herein shall in any way affect any right of any State or of the Federal Government or of any landowner, appropriator, or user of water in, to, or from any interstate stream or the waters thereof.” Codified at 43 U.S.C. §§ 372, 383 (2006).

See also §27 of the Federal Power Act, now codified at 16 U.S.C. §821 (2006), the text of which appears infra at QQQ.

\textsuperscript{107} See, e.g., Ivanhoe Irrigation Dist. v. McCracken, 357 U.S. 275 (1958); City of Fresno v. California, 372 U.S. 627 (1963); Arizona v. California, 373 U.S. 546 (1963). Ivanhoe summarized the key ruling regarding section 8, stating that, “it merely requires the United States to comply with state law when it becomes necessary for it to acquire water rights or vested interests therein.” 357 U.S. at 291-92. See also, First Iowa Hydro-Electric Cooperative v. Federal Power Commission, 328 U.S. 152 (1946) (disregarding state law requirements about return flow from dams).

control of water to be impounded in the federal New Melones Dam, Justice Rehnquist’s majority opinion stated:

The history of the relationship between the Federal Government and the states in the reclamation of arid lands of the Western States is both long and involved, but through it runs the consistent thread of purposeful and continued deference to state water law by Congress.\(^{110}\)

Whether grounded in the mid-20\(^{th}\) Century reclamation precedents or not, Justice Rehnquist’s view prevailed and the Court ruled that the state of California may impose conditions on the ‘‘control, appropriation, use, or distribution of water’ through a federal reclamation project that is not inconsistent with clear congressional directives respecting the project.’’\(^{111}\) Thus, since the late 20\(^{th}\) century the Court has adhered to the view in the reclamation field that absent a clear congressional supremacy clause-based directive, federal projects are subject to state water allocation law.

In the energy sector, first with the Federal Power Commission and now with its successor, the Federal Energy Regulatory Commission (FERC), the decisions favoring federal power regulation over state water regulation that prevailed in 1946 in First Iowa Hydro-Electric Cooperative v. Federal Power Commission\(^{112}\) have continued.\(^{113}\) In 1990, in the so-called “Rock Creek” case,\(^{114}\) a unanimous Supreme Court rejected an argument by California that the state could impose a higher minimum flow requirement on a FERC licensee than did FERC when it ruled on the application for a power generating license. By that point in history, Congress had added environmental concerns to the subjects that FERC was to review in its licensing decisions, making somewhat stronger the claim of FERC that the higher state minimum flow requirement was a direct conflict with its congressionally mandated role of balancing power and environment.\(^{115}\)

Professor Kelley is critical of Justice Rehnquist’s selective choice of legislative history; Justice White in dissent, is critical of the majority’s reading of precedent. While the author of this Article shares those criticisms of the opinion in California, the Author agrees with the policy it represents. See infra at QQQ.


\(^{110}\) California v. United States, 438 U.S. at QQQ[pin cite].

\(^{111}\) California v. United States, 438 U.S. at QQQ[pin cite].

\(^{112}\) 328 U.S. 152 (1946).

\(^{113}\) For criticism of the differing treatment of the two areas, see, Roderick Walston, State Regulation of Federally-Licensed Hydropower Projects: the Conflict Between California and First Iowa, 43 OKLA. L. REV. 87 (1990) (arguing that the interdependence of water rights require deference to state law to avoid inconsistent regulation within a single river or basin).


\(^{115}\) In the words of the Court: “Congress' subsequent amendments to those provisions expressly direct
Although it is a considerable over-simplification, the case law seems to point to the following balance of power between the federal agencies and the states when a federal project would dictate water allocation consequences at odds with state law:

- Reclamation – state law prevails
- Power generation (except as part of a Bureau of Reclamation dam) – federal agency prevails
- Navigation and other purposes enumerated by Congress in authorizing legislation for Corps’ projects – the United States Army Corps of Engineers prevails

The one additional point of note is that Congress can always change the predicted result by general or project-specific legislation. One very important example of that power is found in §401 the federal Clean Water Act (CWA). Under the CWA, states that take the delegation of the program become responsible for enforcing the ambient water quality standards. One of the mechanisms available to the states to ensure that the quality standards are met is “§ 401 of the Act [which] requires States to provide a water quality certification before a federal license or permit can be issued for activities that may result in any discharge into intrastate navigable waters.” This provision was construed in Public Utilities District No. 1 v. Washington Department of Ecology, to do exactly what could not be done in the Rock Creek case, allow the state to set a higher bypass and instream flow level for a FERC licensee than was required by FERC.

The PUD No. 1 case is instructive at a number of levels. The decision is a clarion reminder that Congress acting pursuant to an enumerated power that affects water allocation, can select the water allocation decision maker, placing the authority with either the states or the federal agency. Second, CWA §401 is an example of Congress subordinating broad federal programs to context-specific state water use regulation. That choice is not aberrant, it is completely consistent with the long history of the state police power over water quality and quantity determinations. That allocation of power

---

that FERC consider a project’s effect on fish and wildlife as well as “power and development purposes.”


116 See, e.g., In re Operation of the Missouri River System, 421 F.3d 618 (8th Cir. 2005) (giving great deference to the Corps in managing the Missouri River in contravention of preferred state uses of water in the Upper Basin). See also ETSI Pipeline Project v. Missouri, 484 U.S. 495 (1988) (Corps must approve state law permitted water marketing out of reservoir the Corps manages).

117 33 U.S.C.A §1341.

118 33 U.S.C.A §1319(a).

119 511 U.S. at 707.

120 511 U.S. 700 (1994).
ensures that water use decisions are being made by the decision maker whose interest is the water resource, rather than the federal agency with a programmatic interest in one water use rather than another. Section 401 consolidates authority over water in a single place, which makes it more likely that the water resource can be managed for the greatest benefit of all its users. Finally, it shows a degree of trust on the part of congress that states are unlikely to act in ways that jeopardize significant national interests, or at least that the number of cases in which significant injury to the national interest is a threat that can be dealt with by subsequent congressional action.

B. Multistate Basins Presenting State-State Conflicts

The points made favoring reinvigorated state authority over water use decisions as a preferable federalism choice (in the absence of a specific Congressional directive) have been posed as if the choice between state and federal control involves only the water allocation system of a single state, or a state-preferred water allocation result that all basin states support. In fact, many of the river systems in the East cross state lines making them subject to potentially conflicting use interests and allocations of water made by, or desired by, the different states in the basin. More pointedly, conflict among sister states in a basin is one of the hallmarks of most of the higher visibility cases of recent Eastern states water conflict. For that reason it is necessary to consider how state-state conflict alters the analysis.

The presence of state-state water conflict invites a role for federal authority, but it is not a federal authority to dictate a particular water allocation by fiat, it is a federal role as arbiter of the interstate conflict. Under what the Supreme Court has termed the Equal Footing doctrine, no state has an a priori claim that its water uses take precedence over those of a sister state. Justice Holmes, in New Jersey v. New York, captured an essential aspect of interstate sovereignty:

A river is more than an amenity, it is a treasure. It offers a necessity of life that

121 The states have not always used this power exactly as intended. See, e.g., Robert H. Abrams, Is FERC Going with the Flow?: A Comment on the Upper Ohio River Basin Litigation, RIVERS, 206, (July 1992)

122 The relatively small number of cases likely to arise that contravene the national interest is important. In that regard, compare the way in which the United States Supreme Court found it necessary under Dormant Commerce Clause doctrine to allow adversely affected parties to contest state and local laws favoring local interests at the expense of interstate commerce.

123 The Virginia Beach and Missouri River examples mentioned previously involve state-state conflicts, as do the ACF and Catawba River examples that follow in which the interstate conflict issue is discussed more fully.

124 “The new states have the same rights, sovereignty, and jurisdiction over this subject as the original states.” Pollard v. Hagan, 44 U.S. 212, 230 (1845).

125 283 U.S. 336 (1931).
must be rationed among those who have power over it. New York has the physical power to cut off all the water within its jurisdiction. But clearly the exercise of such a power to the destruction of the interest of lower States could not be tolerated. And on the other hand equally little could New Jersey be permitted to require New York to give up its power altogether in order that the river might come down to it undiminished. Both States have real and substantial interests in the River that must be reconciled as best they may. The different traditions and practices in different parts of the country may lead to varying results but the effort always is to secure an equitable apportionment without quibbling over formulas.126

When states are unable to accommodate their water uses in a mutually satisfactory manner, part of the genius of American federalism is the availability of federal institutions that can provide and enforce a peaceful resolution. Justice Holmes pointed out that aspect of the Court’s original jurisdiction, noting that in the absence of the federal system and the Court’s original jurisdiction, the perceived injury to an important shared natural resource, such as water, would be a casus belli.127 The three mediating and enforcing mechanisms available to the federal government in the event of state-state water resource conflict are equitable apportionment litigation in the Supreme Court, congressional apportionment, and, when the states can agree on a management mechanism, interstate compacts for which the Constitution requires congressional approval.128

Granting that federal authority may be useful in mediating and enforcing resolution of an interstate water dispute, however, says absolutely nothing about what sovereign’s law and policies ought to be honored in the process, nor does it provide a calculus for determining which water uses ought to prevail in the event of incompatibility.129 There is absolutely no hint in equitable apportionment that suggests the water use prerogatives should be those of the national government rather than the states.130 Both the interstate compact process and congressional apportionment inject Congress and its

126 283 U.S. at 342-43.
129 One subtext of this Article is that in the East, where highly consumptive irrigation is not as dominant a use as in the arid West, there are relatively few cases of total incompatibility of uses (i.e., zero sum situations). For that reason the central aspect of interstate dispute resolution facing the East will be creating institutions capable of balancing management objectives to maximize the benefits across the full spectrum of uses while respecting the sovereign interests of all basin states as Justice Holmes explained in New Jersey v. New York, supra text at note QQQ.
130 See, e.g., Kansas v. Colorado, 206 U.S. 46, 97-98 (1907) (equality of right of states to apply their own law water law to manage the waters of a river).
ability to promote national interests into the fray, but that power has not been used to displace the primacy of the states as decision makers. In the post-allocation wake of apportionment and compacts, the states operate their water law systems under the now-federally established quantitative umbrella. The most common form of federal supremacy impinging on state water use decision making is the inclusion of United States Commissioners on many of the interstate river compact commissions. Presumably those commissioners are not potted plants and are there to serve a purpose in relation to compact actions that might affect federal interests that are present in the basin. Even so, as the Supreme Court has made exceedingly plain, the power of compact commissions, indeed, the operation of compacts overall, is enshrined in the compact itself:

Under the Compact Clause, two States may not conclude an agreement such as the Pecos River Compact without the consent of the United States Congress. However, once given, “congressional consent transforms an interstate compact within this Clause into a law of the United States.” One consequence of this metamorphosis is that, unless the compact to which Congress has consented is somehow unconstitutional, no court may order relief inconsistent with its express terms. (Internal citations omitted.)

Thus, even in the interstate context, the compact takes as a starting point the allocation of water and management devices that the states, as the principal water allocation authorities, proposed and to which Congress added its ratification.

This truncated review of the principal federal interstate water allocation mechanisms demonstrates that state primacy is not being displaced. To the contrary, in the interstate context the federal government plays a facilitative role by lending its supremacy clause power to mediate and enforce consistent and complementary actions of what otherwise would be antagonistic state efforts to use the waters of a single basin in incompatible

---

131 The Boulder Canyon Project Act, 43 U.S.C.A. §§617 et. seq, (1928) which was held in Arizona v. California, 373 U.S. 546 (1963), to have worked a congressional apportionment of the Colorado River is not to the contrary. In that instance all of the states, save Arizona, had assented to the division in the river set forth in the act. In addition, the subsequent use of the water was to be determined under state law, with each state limited to the amount apportioned to it by the legislation. See, e.g., Sax 4th ed. at 816-35.


133 Cf. Brendan Sullivan, lawyer for Oliver North in the Iran-Contra hearings who famously said, “I am not a potted plant.” (Indicating he was present at the hearings to serve a purpose).

134 See Texas v. New Mexico, 462 U.S. 554, 564 (1983) (holding that the terms of the badly flawed Pecos River Compact were not open for reformation by the Court since compacts are direct congressional actions).
ways.

The proposal of this Article is to alter the balance of state and federal power described above as little as possible while still solving the problem of fractured water management. That balance is subtle: in combination, the net effect of compacts and equitable and congressional apportionments places allocation authority primarily with the states while the national government uses its overarching authority to solidify water sharing agreements of the states, to resolve otherwise irreconcilable conflicts of the states, and, only as needed, to promote national interests traceable to the United States’ enumerated powers. One reason to retain this federalism relationship is that anything else tries to throw off the weight of federalism history regarding state primacy over natural resources and their local utilization. What this Article advocates is utilizing that longstanding federalism balance more effectively (1) by altering the manner in which federal power is exercised to the CZMA model where federal power enhances state decision making, and (2) by revisiting the ways in which federal programmatic functions affecting use of the nation’s waters, primarily those of the United States Army Corps of Engineers (Corps) and the Federal Energy Regulatory Commission (FERC), are pursued. In that sphere, this Article proposes to give more power to the states, keeping the bulk of the potentially preemptive federal authority currently wielded by those agencies in the hands of Congress and more disinterested (i.e., non-project) federal agencies. To make that proposed distribution of water management authority more concrete, it is helpful to examine the types of problem that call for a reworked allocation of water use decision making.

C. Contemporary Examples of Federal Determinacy:

1. The ACF Debacle

The poster child for a contemporary Eastern states water shortage problem in need of effectual management is the Apalachicola-Chattahoochee-Flint (ACF) dispute. In this case, water shortage has highlighted both interstate and state-federal stalemates, and starkly demonstrated the competition for water among the several uses in need of water security – population, ecology, energy, and agriculture (food), as well as recreation and navigation. The frontline antagonists are the three basin states. Georgia is most concerned about ensuring an adequate water supply for the Atlanta metropolitan region, where periodic and sometimes severe extended drought has been an issue in several of the last 25 years. Atlanta has almost no substantial water supply options other than a permanent modification in the management of the northernmost Corps

---

reservoir in the ACF basin, the Buford Dam and Lake Lanier, to favor a release schedule that ensures sufficient water is available for the metropolitan Atlanta region at all times. Conflicts arise when the releases from Buford Dam are minimized in an effort to increase upstream storage as a hedge against drought, and that change in releases adversely affects downstream navigation, power plant cooling and ecological interests championed by Alabama and Florida.136 In a quite different way, the release pattern favoring Atlanta’s water needs also adversely affects longstanding Corps contracts with hydropower users, a constituency that believes it has a legal right to releases for power peaking (a more valuable commodity) rather than releasing in lesser quantities on a more regular basis for municipal supply, or holding the water in storage to address the possible needs that would arise in the event of a major drought.137 Georgia also makes extensive irrigation use of water in the Flint River basin.

This is a much studied and commented upon topic138 where more than twenty years of effort have generated only a few years of truce while the states attempted to negotiate a resolution of their differences via a failed interstate compact, and where there is no certain indication that a lasting solution has been put in place.139 Without going into

136 As noted previously, supra at QQQ, the conflict may be one of perception (and political demagoguery) rather than reality. The most acute impact of holding more water upstream is the reduction in peaking use of hydropower. Having that water in storage upstream tends to increase the ability of the Corps to move additional water downstream in a fashion that protects ecological interests, recreation, and navigation.

137 The power interests can be harmed in second and lesser manner as a result of the comparatively small direct diversions from Lake Lanier for delivery to more northerly communities that bypass the turbines altogether. These facts and many others about the entire history of the ACF controversy and its two decades old, many headed hydra litigation saga are very clearly recounted by the 11th Circuit in its 2011 review of the consolidated multi-district litigation. See In re MDL-1824 Tri-State Water Rights Litigation, 2011 WL 2536507 (C.A. 11 (Fla.) (June 28, 2011).

138 The surfeit of commentary includes at least 30 articles. See, e.g., Robert H. Abrams, Water Federalism and the Army Corps of Engineers Role in Eastern States Water Allocation, 31 UNIVERSITY OF ARKANSAS LITTLE ROCK LAW REVIEW 395, 408, n. 62 (2009) (citing roughly 20 of them). Regrettably, the author of this Article has contributed more than his share to the overexposure of this situation in the academic sphere.

139 The 2011 11th Circuit decision in the case, In re MDL-1824 Tri-State Water Rights Litigation, 2011 WL 2536507 (C.A. 11 (Fla.) (June 28, 2011), has taken a ticking time bomb off the table. The decision below in that case had ruled that the corps had exceeded its authority in continuing to make such large amounts of water available to Atlanta and other municipal users, giving the Atlanta parties until 2012 to obtain express authorization from Congress to have the Buford Dam operated for that large an amount of municipal supply. In re Tri-State Water Rights Litigation, 639 F.Supp.2d 1308 (M. D. Fla. 2009). Before anyone gets too confident that the looming crisis for Atlanta is at an end, the remand in the case leaves some room for the Corps to take a position unfavorable to Atlanta, and an appeal of the case once the Corps action becomes final would open up the 11th Circuit decision to Supreme Court review. As described later, it is most unsatisfying to rest the water security of 5.5 million people (See http://www.atlanta.net/visitors/population.html) on a few words in two 1940s supporting Corps’ reports that mentioned municipal supply as a purpose, but did not result in that language being part of
detail, the strategy of the states and some of the stakeholders has been to seek advantage in every available forum, proffering arguments that might win a victory but which have little to do with a larger concept of regional water management and absolutely nothing to do with state water allocation policy and law.140

A second example of a contemporary Eastern states water dispute having interstate and federalism coefficients is a North Carolina interbasin diversion of water drawn from the Catawba River into the Yadkin-Pee Dee basin. In that litigation South Carolina, the downstream state in both basins, was granted leave to file an original action in the United States Supreme Court objecting to the diversion and seeking an equitable apportionment.141 South Carolina claims that the Catawba diversion deprives South Carolina of an equitable share of the Catawba’s water that will support its growing water needs, especially in dry years.142 The North Carolina authorized transfers, in key months of a drought year, exceed ten percent of the river’s flow and are alleged to require curtailment of important uses in South Carolina.143 The potentially dominant federal involvement in the basin arises from the regulatory authority of FERC to set release requirements for the eleven Duke Energy Carolinas, LLC (Duke Energy) dams that effectively control the Catawba’s flows both upstream and downstream of the proposed diversion. As in the ACF setting, the states began with antagonistic positions and lacked control over the operation of the eleven hydropower dams on the Catawba

the legislation itself. See Tri State at 10-11.


142 Motion of the State of South Carolina for Leave to File Complaint, Complaint, and Brief in Support of Its Motion for Leave to File Complaint, South Carolina, 128 S. Ct. 349 (2007) (No. 138, Original (06A1150)), 2007 WL 3283683 [hereinafter “South Carolina Motion”]. The factual material in the text is drawn from this document, which contains the Motion for Leave to File, the Complaint, and the Brief in Support of the Motion to File that has a series of attached affidavits. In places, additional facts are taken from the Brief of North Carolina in Opposition to the Motion for Leave to File, South Carolina, 128 S. Ct. 349 (2007) (No. 138, Original (06A1150)), 2007 WL 3283684 [hereinafter “North Carolina Brief”], and the subsequent Reply Brief of South Carolina, South Carolina, 128 S. Ct. 349 (2007) (No. 138, Original (06A1150)) 2007 WL 3324204 [hereinafter “South Carolina Brief”]. For a more precise description of the allegations in the case, See Robert Abrams, The Boundary Waters Treaty of 1909 as a Model for Interjurisdictional Water Governance, WAYNE STATE LAW REVIEW (forthcoming 2009)

143 The allegations in the Court documents thus far do not specify the level of reduction with specificity nor do they break them out by use category, such as municipal supply, ecological flows, energy production or food production.
which might have provided a way to reconcile their diverse positions by adjusting dam storage and release operations to avoid devastating water shortages in dry years.

Under those circumstances, equitable apportionment very likely appeared to South Carolina to be its only option in the face of North Carolina’s intent to use its upstream position to unilaterally change the river’s flow. Once the litigation was commenced, along with other interested parties, Duke Energy sought to intervene, and in a precedent setting decision, the Court allowed the intervention.144 With Duke Energy as a party, and in light of the on-going relicensing of its facilities, the conditions for a negotiated settlement improved. If an agreement could be struck using the Duke Energy storage to ensure adequate water to users in both states in low flow years, casting that operating plan a condition in the FERC relicensing would ensure a means of implementing a result that met both states’ needs that could not have been obtained without getting FERC and its licensee involved. In fact, such an agreement was reached after the intervention was allowed.145

As growth and the greater prevalence of both drought and flood conditions146 combine in the East, it is easy to predict that there will be increasing competitions for water and increasing concern with the way in which the storage capacity of dams is utilized. Those issues would best be addressed by carefully drawn management plans, plans that all water users understand and can prepare for, especially in the event that low water availability conditions occur. The alternative to that sort of proactive management thrusts water users and political authorities into a reactive competition that seeks to influence ad hoc responses to the problem that benefit their own narrow interests rather than considering the needs of all users of the basin’s water.

The events in the ACF and Catawba basins,147 despite their differing paths to date, not


145 See Settlement Agreement of December 3, 2010, Original No. 138, available at http://www.circleofblue.org/waternews/wp-content/uploads/2010/12/Catawba-River-settlement.pdf. The pending original action was subsequently dismissed. South Carolina v. North Carolina, 131 S. Ct. 855 (2010). Although the states opposed intervention by Duke Energy and FERC was not a party to the litigation, the potential role of FERC in assisting in a settlement was already contemplated. One of the principal lines of defense raised by North Carolina was that a pending change in FERC regulation of the timing and amount of hydropower releases from regulated facilities on the Catawba would guarantee minimum flows into South Carolina sufficient to avoid all claimed downstream injury. See QQI[find in NC brief].

146 See supra at QQI[Climate Office document where I cited pp 30-32]

147 As a third setting, consider way in which the Corps addressed the possibility of making revisions to its Missouri River Master Manual. There the Corps has shown an implacable tendency to claim its dam and reservoir operations are fully dictated by the various congressional directives linked to the construction of the facilities many decades ago. In other words, the state water allocation interests are rendered irrelevant as the federal agency pursues its perceived programmatic imperatives.
only exemplify the potential for strife in times of water shortage, they also reveal the shortcomings of the present legal framework as a mechanism for resolving those conflicts. To begin, there is no reliable and efficient method for obtaining cooperative water management of interstate resources. To this point in time under existing models, each basin state will value its in-state uses more highly than uses made elsewhere, and make its decisions accordingly. Absent a credible threat of having a less advantageous result imposed on it, each state will tend to stick to a self-serving position. Second, even after a state makes its decisions about how water should be managed, or even when basin states agree on management, it is the federal government that, in most cases, controls or regulates the party that controls the physical apparatus that would be needed to implement the state’s management plan. Those plans necessarily rely on water storage and appropriately timed releases as a part of any low flow strategy.

Here the contrast of the ACF and the Catawba, where FERC and its licensee were willing to facilitate state water management objectives, is particularly illuminating. On the ACF, the Corps position is that it is bound by its own set of legal strictures, although its interpretation of what leeway it enjoys has varied slightly over time. In response, the state parties are fighting to make the Corps do their bidding and the result will turn on the legal niceties of the Corps’ governing statutes and, possibly, its internal agency positions. The courts agree with those suppositions— that the federal agencies have little or no room to support state water allocation policies that are not strictly coincident with federal programmatic interests.

Hoping to conclude several pending cases over the ACF that date back to 1990, the still pending litigation was consolidated by the Multidistrict Panel into a single proceeding in federal district court in Florida, that was presided over by Judge Magnuson, who normally sits in Minnesota and had been the judge assigned to handle the Missouri River multidistrict litigation (MDL). The goal of each party in virtually every phase of the consolidated litigation, as in the Virginia Beach example mentioned earlier, was to use federal laws affecting the Corps as a way to require the Corps to take an action that gave the party its water victory at the expense of the other parties. The political difficulty of compromise for the state parties meant that the bargaining position of whichever party won a victory in one of the phases of the litigation would harden and negotiations continually failed. The MDL case was no different, boiling down to a

---


149 Historically, apart from the CWA §401 requirements as superimposed on FERC in the PUD #1 case, 511 U.S. 700 (1994), the Federal Power Commission and more recently FERC has shown even less deference to state water management authority than has the Corps.


151 See supra at QQQ and sources cited there. See also Joseph Sax, et al., Legal Control of Water Resources 87-97 (4th ed. 2006).
determination of whether, under the Water Supply Act of 1958,\textsuperscript{152} the Corps’ additional storage and releases benefitting Atlanta were a permitted change in the water allocation put in place by the original legislation authorizing the construction of Buford Dam. Section 301 of Water Supply Act states as follows:

\begin{quote}
Modifications of a reservoir project heretofore authorized, surveyed, planned, or constructed to include storage [for water supply] which would seriously affect the purposes for which the project was authorized, surveyed, planned, or constructed, or which would involve major structural or operational changes shall be made only upon the approval of Congress....\textsuperscript{153}
\end{quote}

Judge Magnuson, reviewed the Corps documents proposing the dam and the legislative history surrounding its authorization. The Corps and congressional documents did mention municipal supply as an incidental benefit, but assigned no dollar value to that benefit\textsuperscript{154} and when Congress, in the post-authorization, pre-construction phase later inquired of Atlanta’s mayor if the city would contribute to the $17 million dollar cost of the dam, as had been done by other cities in relation to dams for which municipal supply was an enumerated purpose, the mayor declined and stated that the need for Buford Dam as a municipal supply source for Atlanta had been given, “too much emphasis.”\textsuperscript{155} Importantly to Judge Magnuson, the Definite Corps Report indicated that in times of low storage, power peaking would take precedence over municipal and industrial water for Atlanta.\textsuperscript{156} He eventually ruled, as the Corps in its internal documents had concluded, that allocating more than 21% of the storage to municipal supply was a “major” change requiring congressional authorization, which had not been given. He issued an order to the Corps to reduce the allocation and stayed the order for three years to allow Atlanta time to seek the needed congressional authorization.\textsuperscript{157} Although it is the 800-pound gorilla in the room, Atlanta’s imperative need for the water has no legal significance in the case. Even if Georgia had made municipal use the paramount use under state law, that enactment would have had no

\begin{footnotes}
\item[152] 43 U.S.C.A. §§390b-390f.
\item[153] 43 U.S.C.A. §§390d.
\item[155] 639 F.Supp.2d at QQQ[pin cite].
\item[156] Id. at 1315.
\item[157] Id. QQQ[pin cite]. As a physical alternative, Atlanta had considered and rejected a “re-regulating” dam located below Buford Dam that it would build and operate to ensure water availability for its citizens. The cost, including land acquisition would likely have been in the billions, dwarfing the few millions of dollars that would have reimbursed SeFPC power consumers for the lesser value of receiving less peaking power. Paying SeFPC its loss plus a slight “bonus” for relinquishing it “rights” would thus turn a break even-lose situation into a win-win situation.
\end{footnotes}
relevance to the legal framework controlling Corps operations of Buford Dam.

The recent reversal in the case issued by the 11th Circuit, which has apparently saved Atlanta’s water supply from threatened curtailment in 2012, changes the result but not the irrelevance of state water allocation prerogatives. The “winning” argument in the 11th Circuit was built upon language mentioning municipal supply and off-peak releases favoring that municipal supply use in various Corps’ reports and documents relating to the authorization and construction of the Buford Dam. The 11th Circuit seized upon those references and a rather vague phrase in the Rivers and Harbors Act of 1946 that authorized the project to find that municipal supply always was an authorized purpose of the Buford Dam, obviating the need for congressional approval of reallocation of the water to serve municipal supply:

The 1946 [Rivers and Harbors Act] stated that the [Buford Dam] project would be “prosecuted … in accordance with the report of the Chief of Engineers, dated May 13, 1946. Because that report incorporated the Newman Report in full, the Newman Report became part of the authorizing legislation of the project.” (internal citations omitted)

The almost exclusive viable water supply for five and one half million people should not be cantilevered on that inquiry. To be very clear – what is wrong with the 11th Circuit decision is not the real-world result – ensuring that the Atlanta metropolitan area will continue to receive needed municipal supply as a direct consequence of the manner in which the Corps will operate the Buford Dam. This is water being devoted to population security, the highest priority for water allocation policy. What is ludicrous about the ACF case is that the protection of a major metropolitan area’s water supply is being determined by the nuanced intricacies of what was contained in a report that Congress referenced in enacting legislation authorizing the building of a dam sixty odd years ago. More frustratingly, the “water law” being applied in the case makes no inquiry whatsoever into contemporary state water allocation law or prerogatives as they apply to a water

158 2011 WL 2536507 (11th Cir. 2011).

159 The court also was able to find another Corps report adopted by Congress that mentioned municipal supply while assigning it no value as evidence of congressional intent to make that a purpose. The lack of an assigned value was “presumably because the [municipal supply] benefit …, unlike all others, could only accrue in the future, rendering any valuation at that time speculative.” 2011 WL 2536507 at *3. This presumption, although finding a modicum of support in the Corps’ report as to the speculative nature of the benefit, strains credulity when that reference is used to assert that municipal supply was a project purpose. Agencies such as the Corps are not bashful in using future benefits (insufficiently discounted to make the project that much more attractive) as a justification for projects.

resource that under American federalism precepts is “owned” by the state in a beneficial trust for its citizens and whose regulation is assigned to the states. Something is badly wrong with this picture.

2. FERC and the Supremacy Clause Shadow of Federal Programs

The federal water control issue posed by FERC hydropower dams bears many similarities to the cases involving the Corps role in water allocation, but also has some distinguishing features. Unlike the Corps in the ACF context, where the federal interest traces to decades old dam-specific authorizations, a portion of the authority given to FERC is, at least arguably, to establish and promote an on-going federal policy in regard to use of water for hydroelectric generation. Also arguably, that programmatic interest is inherently preemptive of state authority, since FERC licensees could hardly generate hydropower if the states could forbid them use of the water. This logic leads to the results in First Iowa and Rock Creek that are so deferential to the Federal Power Commission/FERC.161 Those precedents almost certainly deterred the state parties in South Carolina v. North Carolina from even raising the possibility that North Carolina water allocation law could provide a basis on which North Carolina could require its state law riparian rights holder, Duke Energy, to use its water rights in conformity with state water management prerogatives. As was seen by the role the FERC licensed dams played in the eventual settlement of the interstate dispute, making those facilities accountable to state water laws opens a far broader array of management options that can obtain greater benefits from the resource complex than does operating those dams in the service of a narrower programmatic mandate.

There is a major opportunity here for obtaining important societal benefits from the water resource at a far lower social cost. A study has found that small incremental benefits that can be obtained from better management of existing facilities greatly surpass the benefits obtainable from new facilities.162 The marginal cost to Duke Energy of altering its operations at existing facilities to ensure extra storage during occasional low flow periods is minimal – there is no capital cost and only small possible reductions in operating revenue. The benefits to the two states of more secure municipal and other supply options are obtained at minimal or no cost from a change in operations of an existing facility. Providing the same security by building new facilities would be enormously expensive. The exact same thing is true on the ACF – it is far more efficient to change operations at Buford Dam than to force Atlanta to build an immensely expensive new re-regulating dam to provide the same degree of water security.163

161 See supra at QQQ.


163 See supra at QQQ.
Thus, two reasons, respect for state control of water resources and the inexpensive but very valuable gains obtainable by improved operation at existing facilities both argue that the degree of deference to FERC’s programmatic interest is misplaced when the operation of a FERC licensed dam would be instrumental to effectuating an improvement in management outcomes and water allocations desired by the states. Cast in this light, as a matter of national policy, it is no longer self-evident the case that when Congress authorized FERC to regulate licensure of hydropower generators and their facilities (1) Congress intended to displace state water resource management and allocation authority, or (2) that Congress enshrined FERC as the sole on-going custodian of an amorphous and never explicitly enunciated federal water policy favoring hydroelectric generation and now some degree of ecological protection. To the contrary, under traditional riparianism and even more clearly under regulated riparianism, the state law water right of a FERC licensee is a mere usufruct of water belonging to, managed by, and subject to the allocation priorities of the state. That state control of water rights is exactly what §27 of the Federal Power Act expressly states should not be disturbed.

The point here is two-fold. First, and emphatically, Congress did not appoint the Corps or FERC as the maker of preemptive federal water policy. The Corps and FERC manage their water projects and licensees to congressional purposes largely unrelated to contemporary water policy. The Corps, which has a slightly more credible claim at having water management responsibilities, is not authorized to make significant water allocation decisions absent explicit congressional action. Second, as may be inferred from the previously quoted section of the Water Supply Act of 1958, Congress anticipated that needs for water could change substantially, but in that case, the Corps would have to return to Congress for new marching orders. There is every reason to think that the Congress of today, which appears comfortable with increasing devolution of authority to the states, would be willing to effectuate a traditional state police power

164 The savings of state law clause was read narrowly to only apply to state laws affecting proprietary rights to water. Rock Creek, 495 US 490, 496-503 (1990).

165 The redress available to the FERC licensee claiming harm from a change in state water allocation would seem to be monetary, and would turn on whether the license could claim sufficiently certain state property rights to mount a claim for a compensable taking. The correlative nature of a riparian right, and the temporal limits of regulated riparianism permits and the conditions that attach to all water use under that system, limit the likelihood of success of those takings claims.

166 Far from there being a preemptive federal water policy, it is generally conceded that there is no articulated federal water policy, but more nearly a series of areas where the federal government’s actions influence water use. See DENISE D. FORT, FEDERAL WATER POLICY FOR THE WEST IN THE 21ST CENTURY, 44 ROCKY MOUNTAIN MINERAL LAW FOUNDATION - INSTITUTE 25 (1998). Also cf., A. Dan Tarlock, Do Water Law and Policy Promote Sustainable Water Use?, 28 PAC. ENV. L. REV. 642, 648 (2011) (suggesting federal water policy is an outdated remnant of the long-since ended big dam era).

over natural resources, by giving the states a greater role in water allocation than program-driven federal agencies that were not appointed to promulgate a national federal water policy. Establishing the proper state-federal balance in the water allocation area is best done by replicating the federalism balance struck by the CZMA as the means of directing operation of federal and federally regulated water control facilities.

IV. The Federal-State Relationship Established by the CZMA

The Coastal Zone Management Act of 1972\textsuperscript{168} is a federal statute that explicitly attempts to coordinate local, state and federal actions affecting the environmentally sensitive coastal zone. Its application is of limited geographic reach, including only states with salt water coasts (also territorial possessions) and the Great Lakes states. It operates by encouraging the states to draw plans for the protection and development of the coastal zone in two principal ways – by offering grants and other support of the planning effort,\textsuperscript{169} and, once state plans have been approved by the Secretary of Commerce, limiting federal actions affecting the coastal zone to actions that are deemed “consistent” with the state’s approved plan. The “consistency” requirement, that gives the state leverage to ensure federal activities are not antithetical to or in conflict with the state’s plan, has become the main driver in the equation because of decreasing levels of funding.\textsuperscript{170} The statutory language is as follows:

\begin{quote}
\textit{\textbf{each federal agency activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved state management programs.}}\textsuperscript{171}
\end{quote}

The states do not get the benefit of CZMA consistency power without paying a considerable political price within their own sphere of influence. Local planning and actions also must be consistent with the state plan and the plans’ binding elements must be embodied in “enforceable policies,” not merely hortatory policies.\textsuperscript{172} Moreover,

\footnotesize
\begin{itemize}
\item \textsuperscript{168} P.L. 89-454, Title III, §301 16 U.S.C.A. §§1451 to 1456 (2004) This law has been amended several times, most recently by the Coastal Zone Protection Act of 1996, P.L. 108-415.
\item \textsuperscript{169} See, \textit{e.g.}, 16 U.S.C.A. §1455(a) (matching grants for program administration). There also are numerous year-to-year appropriations for study and research and other financial incentives for which participating states are eligible.
\item \textsuperscript{171} 16 U.S.C. § 1456(c)(1)(A).
\item \textsuperscript{172} See 16 U.S.C. § 1455(d)(1) (local participation in planning); 16 U.S.C. § 1455(d)(3) (plan must control state and local activities). States have been held to have violated their own Coastal Zone Management Plans, see, \textit{Cook Inlet Keeper v. Alaska}, 46 P.3d 957 (Alaska 2002).
\end{itemize}

\normalsize
Congress, as part of the price states must pay to obtain the benefits of the CZMA and its consistency provision, has used the CZMA to prompt states to take regulatory actions that Congress does not require under other statutes. For example, Congress conditioned continued federal approval of state plans on state implementation of coastal non-point source pollution plans.\(^{173}\) The incentives Congress has provided have worked; more than 30 states and territories have CZMA plans in place.\(^{174}\)

The most striking feature of the CZMA is its federalism component that involves a limited, voluntary agreement by the national government to exercise its potentially preemptive and supremacy clause-backed enumerated powers in conformity with the state plan. The national government gets a quid-pro-quo for that surrender of power. As noted previously, the states that participate in the CZMA must adopt a statewide plan for the CZMA, which benefits the national interest in soundly planned utilization of coastal resources that the federal government could not comfortably regulate directly as part of a traditional exercise of its enumerated powers over admiralty, navigation, or commerce.\(^{175}\) Despite acceding to the consistency requirement, the national government is far from abdicating its control and authority to ensure its interests are fully protected. Consider all of the “checks and balances” the federal government has over state CZMA powers:

- The state plans must obtain federal approval pursuant to standards promulgated by the lead federal agency, the Department of Commerce;
- The state plans cannot single out federal activities for differential and less favorable treatment, state and local activities must also be consistent with the state plan;\(^{176}\)
- The states cannot claim inconsistency of a federal action without a supportable basis;\(^{177}\)
- The federal actions must be consistent with state plans, but only to “the maximum extent practicable”;
- The state determinations of inconsistency are subject to federal review --
  - The federal agency and the state may opt for mediation by the Secretary of Commerce;\(^{178}\)

---


\(^{174}\) Patricia E. Salkin, 1 Am Law of Zoning §3.3 (5th ed. Database update of May 2009).

\(^{175}\) The scope of those powers when they affect local land uses is frequently challenged. See, e.g., Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, 531 U.S. 159 (2001).

\(^{176}\) See 15 C.F.R. §930.6(a).

\(^{177}\) See John A. Duff, The Coastal Zone Management Act: Reverse Pre-Ejection or Contractual Federalism?, 6 OCEAN AND COASTAL L. J. 109, 113 (2001) (“the state must do more than merely object; it must articulate some rational basis for doing so . . .”)

\(^{178}\) 16 U.S.C. § 1456(h).
The disputants may opt for immediate judicial review179 in which courts are divided over who bears the burden of proof on the consistency/inconsistency issue;180

- Administrative or judicial review that upholds an inconsistency is subject to a power of exemption by the President, upon a finding that the federal actions are “in the paramount interest of the United States”;181
- All aspects of the CZMA itself and any inconsistency determination can be overridden by Congress by ordinary legislation.

The CZMA consistency provision, although it has its detractors,182 “works” without too much friction or federal frustration. There is a strong evidentiary basis of that. The President has not had to use the exemption power; the Secretary, in mediation cases, has used the veto power on a small number of occasions, but not so many as to undercut the state plans.183 Congress has always reauthorized the act, and Congress even strengthened state authority under the act when a Supreme Court decision184 limited the right of a state to consider indirect effects of federal activities on the state’s coastal zone as part of the inconsistency determination.185

V. Visualizing the Operation of a CZMA-like Approach Applied to Eastern States Water Management

The earlier section on “Key Values” and “Recurrent Problems” clearly delineated a broadly desired outcome for Eastern states water management and the principal impediments to achieving that result under existing conditions. The goal was state-led water use management that prioritizes water allocations in time of scarcity to provide for population, ecological, energy, and food security sequentially in that order, while


180 Compare, Louisiana v. Lujan, 777F.Supp. 486, 488-89 (E.D.La. 1991) (burden on state) with Conservation Law Foundation v. Watt, 716 F.2d 946 (1st Cir. 1983) (burden on federal agency); see also, Martin J. LaLonde, Note: Allocating the Burden of Proof to Effectuate the Preservation and Federalism Goals of the Coastal Zone Management Act, 92 MICH. L. REV. 438 (1993) (arguing that burden should be on the federal agency objecting to a inconsistency finding by the state).


185 See Cheston, supra note QQQ at 139-140 and sources cited there.
still striving to maximize the total set of water resource benefits obtained across all uses. At present the most prominent obstacles to achieving that result, or one that is similar, derive from the competing centers of authority, local, state, and federal, each of whom feel responsible to differing political audiences and each having some power over water use, but none with sufficient power to control the others.

As already shown, the CZMA approach has the potential to meld fragmented authorities into the service of singular water resource management. States that participate must submit plans that meet federal standards, standards that can and should serve critical national priorities – such as protecting vital aspects of water security, thereby avoiding the dire economic and environmental costs and dislocations that would flow if those key sectors did not get needed water.186 The East’s current water law supports, and in some cases gives preference to municipal, environmental, energy and agricultural use.187 A switch to regulated riparianism would go farther in that direction, so including some fundamentally important water securities as a federal requirement for plan approval does not greatly intrude on the advocated level of state authority. Beyond setting the broad prioritization to help guide permitting and shortage management balancing decisions, if Congress or the implementing agency wanted to be more prescriptive the federal standards for plan approval could also require that state plans must contain certain minimum federally set levels of performance for conservation or other plan elements. Such an approach resembles other federal floors set in regulatory contexts, such as technology-based categorical effluent limitations under the Clean Water Act. The criteria for plan approval could also mandate that plans include procedural aspects that insure broad stakeholder participation in crafting more detailed basin management regimes.188

The states are the big winners, even if some substantive federal content is embedded in the plan approval requirements. First, the states end up with enforceable plans largely of their own making that address their water future. The state’s water using community

---

186 Those priorities are the ones advocated by the author, but. Obviously, a state’s legislation or implementing regulations control. Similarly, although under a CZMA-like statute, federal legislation or implementing regulations could invoke the commerce power in favor of that prioritization, doing so would only be one person’s strong recommendation. There is an especial benefit in relation to interstate waters to having greater harmony among approvable state plans in matters of key priorities of water allocation and use. See infra at QQQ. “Federalizing” the preferences given various aspects of water security should not be done in a way that prevents balancing of those objectives to maximize total benefits. See supra at QQQ. Similarly, the federal plan approval criteria ought to leave some room for flexibility that recognizes unique basin characteristics or the economic importance particular sectors in that basin.


188 See infra at QQQ.
will be able to predict reliably how water will be allocated under different levels of shortage. Good water planning requires good data and good models as well as a participative process, none of which are inexpensive. As was done with the CZMA, the states will be able to draw on federal financial support and expertise when putting those plans in place.

This second benefit, tapping into federal expertise and cost bearing for the planning process, is greater than might be supposed, both in magnitude and objectivity. As to magnitude, in the most recent litigation between Kansas and Colorado over the water of the Arkansas River, a key issue was the model used to calculate the impact of groundwater withdrawals on the downstream flow of the river. Kansas prevailed on the merits and sought to tax costs for its hydrogeologist experts’ participation in trial before the Special Master, seeking actual costs rather than a statutory witness fee.189 The expert time at trial, not including preparation, was roughly 5,000 hours and the actual cost to Kansas that it sought to recover exceeded $9.2 million.190 Not all basin models will be as complex, but comprehensive water planning, especially when groundwater is integrated with surface water, is never simple.191

As that case also suggests, modeling is potentially controversial, since it is underlain by a variety of assumptions and interpretations regarding the use or significance of data, even when the raw data being used is agreed data. Injecting federal expertise from an independent agency into the modeling effort may increase the trust placed in the model by the basin’s stakeholders, none of whom is likely to trust a model devised by someone with a direct stake in the outcome.192 The candidate agency here proposed to become involved in basin modeling is the United States Geological Survey (USGS). The USGS already tracks water resources nationwide and has earned a strong reputation of integrity and scientific excellence. Unlike some agencies that presently build and utilize basin models, such as the Army Corps of Engineers, a USGS model is likely to be more trusted since the USGS has no mission that is affected by how the water is allocated.193

192 Speech delivered at Florida A & M University College of Law, May 22, 2010 of Brian Manwaring, Program Manager, United States Institute of Environmental Conflict Resolution. Mr. Manwaring was describing aspects of his efforts to facilitate stakeholder participation and communication in the ACF dispute, and noted the strong disinclination of Apalachicola Bay interests to rely on a hydrologic model developed by a contractor hired by the Atlanta Regional Commission. The Author served as an informal advisor to the Apalachicola Riverkeeper and observed that same reaction.
193 There needs to be a degree of compartmentalization to protect the independence of the USGS as model trusted builder. The use of the model by stakeholders considering various scenarios and tradeoffs that would go into fashioning shortage management plans would need to be done by someone else, such as the United States Institute of Environmental Conflict Resolution.
The importance in minimizing the divisive disputes over technical matters affecting basin management can also be seen in the role played in developing a win-win-win outcome to a municipal supply problem threatening Washington, D.C. by models and simulations of the engineers at the Interstate Commission on the Potomac River Basin, which was “not seen as beholden to any one jurisdiction or water supplier.”

Noting the fact that the federal agencies frequently have an interest in how water is allocated raises the final and, in many regards, most important benefit to the states of a CZMA-like water planning regime. States that adopt approved plans gain a great deal of power that they otherwise would lack – the ability to insist on consistency with the state plan of federal activities that might otherwise assert a supremacy-based freedom from state control. Looking at the ACF and Catawba examples, the actions of the Corps and FERC, respectively, can result in the de facto allocation of important portions of the available water, and invariably direct the operations of most of the major water control structures that would be instrumental in effectuating water management. Without a CZMA-like statute, in the absence of voluntary agreements by federal agencies or their licensees, the states can use federally controlled facilities to effectuate their water law allocations and management plans only through litigation dominated by arcane federal law issues in which state prerogative are irrelevant.

There is no need to fear that an Eastern states water management law would set federal interests at naught or undermine important federal policies. As was made clear in the exploration of the CZMA’s operation, the states do not gain unfettered control. Still, even with all the federal checks on state plans and inconsistency determinations, the impact of this law is immense. Corps maintained and regulated facilities whose operations often dominate the water storage and management options are no longer ruled solely by their historic project-by-project authorizations that impose a Balkanized federal policy created by piecemeal decisions made by Congress over the past 75 years. FERC licensees are no longer able to operate independently of limitations on the use of water imposed by the very sovereign who is the source of their usufructuary rights, and FERC no longer occupies a major water allocation role.

Similarly, there is no need to fear that a CZMA-like Eastern states water management law will end contemporary water use patterns that people have come to rely upon.

---


195 The federal standards are not promulgated in a vacuum, the federal agencies whose missions are affected will weigh in vigorously, as will their constituents and licensees.

196 This point is more extensively argued in Robert Abrams, Water Federalism and the Army Corps of Engineers Role in Eastern States Water Allocation, 31 UNIVERSITY OF ARKANSAS LITTLE ROCK LAW REVIEW 395, 406-22 (2009).
Most of the changes are going to be in the management of the systems in time of
drought or, possibly, times of extreme high water. These times of shortage and the
unsatisfactory “crisis mentality” that surrounds them is the impetus for management
the object of which is to substitute a more proactive and predictable response. The rest
of the time, when there is usually ample water present, there may be changes in the law,
but those changes will make only marginal differences in water use. What almost
certainly will change in many states that participate and have plans approved is how
additional water demands are incorporated into the management and allocation scheme
during non-drought periods. Those new uses will have to be integrated into the state
plan, which will have procedural aspects (a permit application) and substantive
requirements that ensure that any new water use allowed is consistent with the state
plan. Just as the federal government will have a consistency requirement, state and
local actions have to be consistent with the plan. If a state plan, for example, links land
development to water allocation and availability, which is an increasingly common
modern phenomenon,\(^{197}\) many types of development that require water supply will
have to establish that their use is “consistent” with the state water management plan
and whatever limits it may place of use of water. This is exactly the kind of integrated
planning benefit that the CZMA hoped to obtain for the coastal resource complex, now
being achieved for the water resource complex.

Returning to one possible bulwark of state plans, adherence to the four water security
priorities in time of shortage, it is important to note that requirement does not presage
major changes from current practice. Water for population security, as it is described in
the Article, has always been protected in one fashion or another.\(^{198}\) Comparatively, that
use requires a very small percentage of the total available supply.\(^{199}\) The state plans will
provide equivalent protection, possibly more comprehensive and planned-for
conservation, but only rarely will substantial change in the patterns of water use result.
Water for ecological security is a somewhat larger volumetric use and assigning it the
second priority could affect other uses. In the East, unlike much of the West, it is still
early enough in the water use dependence cycle to prevent streams from being


\(^{198}\) There are no cases of an American city ever being deprived of adequate water to function as a result of shortage, although there are instances in which stringent short-term conservation has been imposed.

\(^{199}\) In part, this has always been possible because water for population security consumes a very small percentage of the available supply. The figure was approximately 10% for the combined total consumption of domestic, commercial, and industrial use. See United States Geological Survey, Estimated Use of Water in the United States in 1995 supra note QQQ. The 1995 report is the last one that provided data on consumption, the newer reports provide only data on withdrawals. This level of usage is a 15-year old composite and, therefore, includes only an average level of conservation, using conservation techniques that are far less effective than those available today.
dewatered by excessive withdrawals and water consumption. Similarly, many of the instream flows that a plan might require during a time of extreme shortage are already legally required through state minimum flow laws, and in a small number of locales in consequence of the federal Endangered Species Act.

Giving energy a higher priority than agriculture in time of shortage answers the question of who is assured use of the water, which may impose results that vary from the application of current allocations. What enforcing that priority does not require, however, is an economic wipeout of the irrigation users. Physically, the largest energy uses are for thermo-electric generation cooling, which historically has required very large withdrawals and little consumption, so that water may yet be available for irrigation at downstream locations. More importantly, a state plan could include transfer payments as a means of compensating permit-holding farmers who cannot irrigate in a dry year.\textsuperscript{200} The value of water in the two uses typically varies by an order of magnitude or more, with energy being more valuable. Energy firms if they do not simply absorb that cost of the transfer payment, can spread it as part of the power distribution process. In the event either energy or food production are curtailed by water shortage, the larger economy will readily substitute replacement sources for those forced out of production by a severe drought in any particular area. In this regard, the Eastern United States has the benefit of a diversified portfolio of energy and food sources. Comprehensive state water management planning, if anything, will buffer the adverse impacts, not accentuate the dislocations or the social cost of the water shortage.

\textbf{VI. Interstate Competition and CZMA-like Water Management}

The inducement to Eastern states participation in water management planning as set out above is quite strong in regard to basins that lie wholly within a single state, or basins in which the in-basin states can reach agreement on how the beneficial use of the water should be managed. Cases of interstate conflict over how water should be allocated and managed raise more complex considerations, the implications of which will vary depending on how the federal water management facilitating law operates. If federal approval of state plans has a requirement that all basin states manifest some sort

\textsuperscript{200} This is a critical advantage over some current state laws on the subject. For example, Georgia has a water conservation plan for the Flint River that calls for state-compensated fallowing to preserve water based on March of the growing season water availability predictions for the Flint Basin alone. See \textit{Ga. Code Ann.} § 12-5-540 (2000). That arrangement has several flaws, its lack of a funding source other than a general fund legislative authorization, the early (in relation to a summer onset drought) date, and its limited geographic purview (the Flint-only aspect ignores possible drought conditions in the Chattahoochee, a condition for which added Flint flows to the Apalachicola could provide relief). Under a state-level plan with transfer payments to permitees required to forego water use, a later in time decision can be made and a source of private funding from those who most directly benefit from the reallocation and, under the hierarchies suggested, cites and energy companies would be in a good position to bear and spread the cost widely to large numbers of end-users.
of consent or acquiescence, basins having already matured controversies become unlikely candidates for planning under the new law. If, instead, the federal statute allows for approval of a single state’s plan without assent by all other basin states, the law will create a dynamic that is likely to spur planning by at least some states in basins beset by an interstate dispute. A consideration of simple game behavior explains this prediction.

A. If It Was A Game, Would States in Conflict Choose To Play?

Imagine a game being played under an existing set of rules. For the moment, assume it is a zero sum game, in which one player’s gain is the other player’s loss. If the rules allow a single player to block any change in rules, the player with the advantage under the current rules will win by preventing a change in rules. Alternatively, if a rules change can be obtained by the action of a single player (or any group less than all players), there is a very different dynamic. Players who are destined to lose under the current rules will exercise their ability to change the rules, avoid defeat, and obtain at least a chance of a better outcome under the changed rule.

Applying that game-theoretic set of behavioral actions to the proposed Eastern states water management law, if the new federal law requires all states in a basin to agree on a plan, states who will “win” under the status quo will prevent entry into the new federal statutory mechanism by refusing to agree to a single basin plan. Conversely, states that see themselves as likely to “lose” under the status quo would take advantage of the opportunity to change the rules by having a plan of their own gain federal approval. With those behavioral patterns in mind, it becomes self evident that if water planning is to take hold in shared basins where there is a water conflict among the basin states, the federal law establishing the opportunity for management must allow planning to be initiated by a single state.

201 In historic interstate water allocation cases, this tends to be the way in which states perceive the situation – if one gets more (such as a larger state line water delivery obligation on the part of the upstream state), the other gets less.

202 Real world events in the form of state willingness to negotiate a solution to the water use conflict in the ACF basin verify these behavioral predictions. For a period of time, Georgia, in its pursuit of water for Atlanta held the superior legal position, was winning the legal battles and was not willing to compromise. See Robert Abrams, Broadening Narrow Perspectives and Nuisance Law: Protecting Ecosystem Services in the ACF Basin, 22 J. LAND USE & ENV. LAW 243, 265-69 (2007), Robert Abrams, Interstate Water Allocation: A Contemporary Primer for Eastern States, 25 UNIVERSITY OF ARKANSAS LITTLE ROCK LAW REVIEW 155, 164-73 (2002). Then, the unexpected happened and Florida and Alabama got the upper hand in the litigation trying to “control” the Corps, See, Southeast Fed. Power Customers, Inc. v. Geren, 514 F.3d 1316 (D.C. Cir. 2008) and Tri-State Water Litigation Re., 639 F. Supp. 2d 1308, 1355 (M.D. Fla. 2009) discussed supra at QQQ. The bargaining stances reversed and Florida and Alabama adopted a hard line that led to the breakdown of talks being facilitated by Secretary of Interior Kempthorne. See Letter of March 1, 2008 from Secretary Kempthorne, Chairman Connaughton [of the Council on Environmental Quality] to Governors Regarding Southeast Water Negotiations (deeming “unfortunate” the continuing resort to the
A second major disadvantage of requiring unanimity of basin states in seeking planning as a precondition for plan approval is the lost opportunity to diffuse the interstate dispute far less expensively than the alternatives. The water law literature is replete with articles bemoaning the inefficiency of both equitable apportionment litigation and interstate compact negotiation, neither of which reliably resolve water allocation disputes on a long term basis. In the East, the 20+ years of multi-forum wrangling over the ACF basin has imposed huge legal costs and is may not yet be fully resolved.

The third disadvantage of requiring unanimity of basin states in seeking planning as a precondition for plan approval is the lost opportunity to escape the trap of treating interstate water allocation as a zero sum game. As already demonstrated by the detailed discussions of how the ACF and Catawba might be resolved with minimal losses to hydropower as the price of major gains in water security and management flexibility, water management in not a zero sum game.

**B. Will the Benefits Make It Good Politics for States To Play?**

Participating states derive benefits on several levels that enhance, rather than diminish their sovereignty (in comparison to the present state of affairs), and thereby provide “political cover” for state officials even if the eventual water allocation result is not exactly the unconditional victory that popular opinion might want. These points require explanation.

It always has been good politics (but possibly bad water management) for state politicians to be seen as fighting to preserve the state’s water against marauding out-of-state interests. Demagoguery and jingoism make for good sound bites. Passage of a courts rather than negotiations, and also threatening “solution being directed to the States instead of our much hoped for solution coming from the States.” The letter is available at http://www.doi.gov/news/08_News_Releases/080301.html..

---


206 For example, U.S. Rep. John Linder, R-Georgia, was reported to have had said this about the ACF
CZMA-like federal process that can be invoked by less than all the states would seemingly take away the option to refuse to play, but it may be hard to wean politicians from the tendency to take overly parochial positions regarding their state’s aqueous patrimony. CZMA-like water management provides ample political cover for state officials due to power gained over federal and extraterritorial water use, but those very considerable advantages do not come in sound bite sized packages, so skill will be needed to make the general public appreciate the many advantages the states are obtaining.

The most obvious selling point is the power of the consistency requirement for approved plans. State sovereignty is dually enhanced – water uses in sister states are subject to extra-territorial impacts of an approved plan and the federal facilities are likewise subject to acting consistently with the state plan unless exempted in one way or another.

It is harder to convey that states benefit by a greater assurance that the eventual outcome is likely to treat every state fairly. As seen in the ACF example, the present system can lead to popular expectations that the state can “win” if it engages in a Water War. Seeking that sort of advantage, however, diverges markedly from the traditional norm prevailing in federal mediation of unresolved interstate water disputes. The United States Supreme Court has said this many times in a variety of contexts, most frequently in equitable apportionment cases and in respect of the “equal footing” doctrine. By having a uniform standard for state plan approval that requires a consistent set of water security priorities, all state plans will begin with similar core “values.”

The third major benefit of the CZMA-like process is savings of time and money. The CZMA model state plan approval process provides a streamlined version of facilitated binding arbitration of interstate differences that avoids the costs of the other forms of


207 See, e.g., Kansas v. Colorado, 206 U.S. 46, 97-98 (1907), which stated, “One cardinal rule, underlying all the relations of the States to each other, is that of equality of right. Each State stands on the same level with all the rest.”

208 See, e.g., Martin v. Waddell, 16 Pet. 367, 410 (1842), which stated, “When the Revolution took place the people of each state became themselves sovereign, and in that character hold the absolute right to all their navigable waters, and the soils under them, for their own common use, subject only to the rights since surrendered by the constitution to the general government.”
interstate water allocation resolution. Especially if there are regulations and criteria that control plan approval, the states will be encouraged to narrow their differences and confine the arguments to the factors that the plan approval process relies upon for decision – matters that would include not only shortage planning that accords with the water security hierarchy, but, conceivably, standards addressing interstate equity and the assurance that the state plan also binds the proponent state and its local agencies to even-handed application of the plan’s requirements. The process features an expert and impartial facilitator and initial decision maker possessed of the resources to collect needed data and build, calibrate, and update models that are used to design the state plans and more specific management options within each basin.

The concern that changed circumstances undercut the value and soundness of more traditional methods of simple quantitative interstate water allocation suggests another strength that can be built into the water management mechanism -- periodic updating of plans. This is already a hallmark of regulated riparianism. One of the driving forces behind water conflict in the East at this time is climate change, which is manifesting itself as a loss of “stationarity” and forcing managers to contend with more frequent and more intense periods of drought and rainfall. That dynamic aspect of water availability is one of the reasons why regulated riparianism, with its ease of water reallocation and on-going planning revision requirements, is so well suited to meeting Eastern water management needs now and into the foreseeable future. If the federal plan approval process calls for periodic review, as is done with many pollution standards, or State Implementation Plans under the Clean Air Act, the CZMA model becomes adaptive, rather than static.

Unlike the states, that will see their sovereign authority enhanced, two federal agencies, the Corps and FERC, will see their current power reduced. Especially with the Corps,

---

209 See supra at QQQ.

210 P. C. D. Milly, Julio Betancourt, Malin Falkenmark, Robert M. Hirsch, Zbigniew W. Kundzewicz, Dennis P. Lettenmaier, Ronald J. Stouffer, “Stationarity is Dead: Whither Water Management?”, 319 SCIENCE 574 (Feb. 1, 2008) available at http://www.gfdl.noaa.gov/reference/bibliography/2008/pcm0801.pdf. For a layman’s confirmation of that scientific conclusion, consider the extraordinary number of rivers in the United States that have experienced so-called hundred year flood events two or three times in the first decade of this century. Similarly, especially in the Southeast, the same is true for droughts in the last two decades – there are more of them and they are more intense than past experience would have predicted.

211 The ability of a water management regime to plan and adapt over time is one of the great advantages of the Delaware River Basin Compact, which allows the compact commission to initiate many operational changes without renegotiation of the compact. See Pub. L. 87-328, 75 Stat. 688 (1961). Planning is required under §3.2 for all uses of water in the basin (§4) of both surface water and groundwater (§4.2), and the Commission is given the authority to reject activities that are not consistent with the plan (§3.8). For a broader discussion of the Delaware Basin Commission powers and its ability to adapt water uses in the basin in response to extraordinary shortage, see Sax, 4th ed. at 853-58.
there are numerous reasons why that might be a good thing. To the extent that the Corps’ operation of water facilities makes current water policy, the Corps’ expertise is in construction and operation, not water policy. Moreover when the Corps espouses a water allocation policy, to a very considerable extent, it is not a disinterested arbiter, its own funding and authority can be enhanced by some decisions rather than others, and it is subject to considerable influence by constituencies whom it serves, such as barge operators. Making the Corps a facilitator of policy decisions made by others, whether it is Congress directly, or the states under approved plans, is far more like the role Congress always envisioned for the Corps. The Corps may have a vested interest in preserving the status quo, but in reality the Corps has no standing to insist that it should be among the most influential decision makers in the allocation of water. That role belongs to the states and to Congress.

The proper role for FERC is even more clearly unconnected to water policy. FERC is involved because of the very extensive regulatory control it exercises over hydroelectric generation and over other power generators, almost all requiring water for cooling. Neither of those regulatory responsibilities, however, has very much to do with the larger social question of which water uses are to receive water in times of shortage. Energy generation is sufficiently important to society’s well-being that it will compete successfully for water in almost all settings, but that is not a reason to give FERC any authority to allocate water. FERC and the power industry can identify energy needs and technologic and economic reasons favoring certain water allocations, but in the end, that advocacy should be treated as just that, an argument for an allocation that competes with other arguments for allocation under the duly approved state plan rules established for water management.

C. Planning for Interstate Allocation and Crafting Operating Rules

Traditionally, interstate water allocations divided the water among the basin states, most commonly with some sort of delivery obligation imposed on the upstream state as the mechanism that ensures a sharing of the resource.212 The presence of a quantified delivery obligation creates risk in relation to water availability for the parties to the agreement. This is a serious problem, especially as basin flows become more skewed to the high and low ends of the spectrum with the loss of stationarity.

Consider the following examples of delivery obligations as the key element in an interstate water allocation and their implications for the affected states. A fixed annual delivery obligation puts all of the risk of drought on the upstream state. If there is less than the expected amount of water that would have allowed the upstream state to

comfortably meet is delivery obligation, the upstream state has to cut its water users back until enough water flows downstream to fulfill the obligation. A long term average delivery obligation solves that problem for the upstream state, by allowing large deliveries in wet years to build up credit in the delivery account. That averaging, however, puts the downstream state at risk, since a savvy upstream state will “over-deliver” in wet years, so that they can “under-deliver” in dry years, even to the point of making no deliveries in a dry year if their credit balance is large enough. The alternative to quantified delivery obligations is percentage allocations. Dividing available water on that basis is more equitable, since the original percentages were, presumably fair to each state to begin with, and a percentage rollback in time of shortage will exact roughly comparable sacrifices in both of the states. One problematic aspect of percentage allocations is having sufficiently reliable real-time measures and predictors of flow to permit in time adjustments of water use.\textsuperscript{213} Fortunately, this is an aspect of water technology that is improving, so that predictive weather and rainfall models are becoming increasingly more accurate, and real time sensing and measurements are improving, and the two are being linked into management parameters for basin systems.\textsuperscript{214} A second problematic aspect of percentage rollbacks is that they may be suboptimal if uses curtailed in one state are markedly more valuable than uses continued in the other, or if some more flexible form of operations could have led to better outcomes in both states.

While repeatedly discussing water management, this Article has yet to suggest a specific manner for formulating those parts of water management plans that address the East’s most pressing water management problem, periodic shortage. Doing so here helps to explicate the way in which the proposed federally approved state plans would address interstate allocation as well as how state plans would operate within a single state. Treat the following as an amalgamation of steps and processes:

- Planning identifies management objectives for the basin
- Management objectives are prioritized in importance
  - The general hierarchy of uses is set (by state legislation and/or federal administrative regulation as a plan approval requirement)
  - Benefits of continuation and impacts of disruption are estimated, using a process that ensures that all stakeholders have the opportunity to provide

\textsuperscript{213} Even timely information and ability to respond do not address the fact that the uses that must be curtailed by proportionate reductions in the two states may not be of comparable importance, or that a unified management system could do more to satisfy all of the basins uses than slavish insistence on delivery requirements. See, Daniel P. Sheer, \textit{Dysfunctional Water Management: Causes and Solutions}, Jan./Feb. 2010 ASCE J. of Water Resources Planning and Management, available at http://www.hydrologics.net/documents/SmeerEditorial-1.pdf.

\textsuperscript{214} Some of the cutting edge developments are being funded by NOAA’s Advanced Hydrologic Prediction Service Awards. See, e.g., http://www.riverside.com/company/clients/noaa.aspx.
information and comment on the estimates

- For each use category estimates are made as the level of harm likely to ensue from ever more serious levels of water supply disruption considering both amount of shortfall and duration of shortfall
- For each use category the estimates also have to be place and/or permit specific, for example, if two cities are 50 miles apart on a river, the impacts are likely to be similar, but for eventual management operations, each must be treated separately

- Hydrologic characteristics (inflows, outflows, effect of regulating structures, etc.) of the basin are modeled – the inflows and outflows include both natural events and all existing water use activities
- The benefit calculations noted above are added to the model so that simulations can be run estimating user-specific and net results of the impacts on users and natural systems of any particular management option under various flow (shortage) conditions
- Publish the model and provide instruction/assistance to persons wanting to use it to run simulations
- Have the state agency, relying on simulations, translate the plan’s management objectives into rules for facilities operations that provide water security (the amount may vary with conditions) to the preferred uses while balancing the remaining water uses to obtain as large a set of benefits as possible.
  - Rules for facility operation can be determined by a collaborative consensus driven process (preferred), or by a process more in the nature of a notice and comment rule making
  - Rules for facility operations address when to store, when to release
  - Rules for facility operations are conditional – they may vary as a function of not only precipitation and forecasts, water in storage, but also may consider how long the shortage has been going on to that point
  - Rules also include specific water user adjustments that will become permit conditions requiring such things as reductions in withdrawals, timing of use, etc., under differing flow conditions

The goal of the process is to develop robust, transparent, rule-driven operations that balance, support, and maximize the benefits of a multi-objective set of management goals. Although this may seem idealized, the techniques and technology needed to support water resources management based on computer-assisted collaborative modeling are already in place and being utilized.  

Although the process has been described from the water management perspective, the

---

conception of how water is allocated and managed correlates well with the legal structure proposed in the Model Regulated Riparian Water Code.\textsuperscript{216} Permits to the water users allow the taking and use of water subject to a number of conditions. Prominent among the conditions are terms that allow reduction of permitted uses upon the happening of certain conditions, such as declared shortages or water emergencies. Permits also can require increasingly stringent conservation efforts triggered by water supply conditions, and other adjustments or total curtailment of use. The triggering conditions are spelled out in the state water plan so that water users have the maximum amount of predictability about how their water use will fare under shortage conditions. Additionally, as noted previously,\textsuperscript{217} a water management system of this type should attempt to include some short term trading device that allows even favored users to use less than their allotment and benefit by transferring that water to the use most in need of it as measured by either the plan itself (administrative allocation) or the market (private purchase or water bank).

In a multistate basin, moving away from fixed allocations and even fixed percentages, toward triggered use reductions eliminates one of the major stumbling blocks of interstate allocations – coming up with a fair basis on which to allocate the risks of short supply. A simple and equitable means of allocating shortage is to apply similar triggered reductions for each type of use basin-wide,\textsuperscript{218} without regard to state lines. Alternatively, states could agree in advance to differential reduction triggers (possibly in exchange for compensation to the state undertaking the greater reductions), that would not compromise the effectiveness of the management plan protecting more important uses in times of shortage. Having a good basin model and simulations to fashion more beneficial outcomes, and the ability to enlist federal operated and licensed facilities to help implement a basin plan, offers a far better outcome for the states and the nation.\textsuperscript{219}

\textsuperscript{216} See supra at QQQ.

\textsuperscript{217} See supra at QQQ.

\textsuperscript{218} The plans can be more fine-grained. For example, upstream restrictions on irrigation might be important to obtaining maximal benefits, while there may be no reason to restrict an irrigator at the far downstream end of the basin, when doing so provides no benefit to others users.

\textsuperscript{219} It is not necessary to give state plans interstate effect. Federal approval of a state plan could require an adequate level of coordination with other state’s plans to operate fairly in the time of shortage. The Environmental Protection Agency makes determinations of that sort under the Clean Water Act. Pursuant to the Clean Water Act §402(b)(5). EPA promulgated a regulation that prohibits a state from issuing a discharge permit under its devolved National Discharge Elimination System program where the issuance of such a permit, “cannot ensure compliance with the applicable water quality standards of all affected states.” 40 C.F.R. §122.4(d). The use of that power by EPA was approved in Arkansas v. Oklahoma, 503 U.S. 91 (1992). See also, Clean Air Act, 42 U.S.C.A.§7410(a)(2)(D)(i) (protecting downwind states State Implementation Plans from being unable to succeed due to pollution permitted in an upwind state).
VII. Conclusion

The time for comprehensive water management in the Eastern states has arrived on the heels of an increased array of important water uses and climate-affected changes in the reliability of historic flows. Whereas the region historically could get by with riparianism as its water law, riparianism’s hallmark method of resolving disputes, looking after a use is made at the reasonableness of that use in relationship to all of the other uses on the stream is not tenable if there are more than a few cases to be decided over several decades. The current relationship of water supply and demand will soon make that era of minimal user conflict a receding memory.

The goals of water management are many, but at a minimum, due to the importance of water to survival and the functioning of modern society, when water is short it must be first directed to secure modern society’s most essential needs – people, ecology, energy, and food. Those uses form a hierarchy that also, when ecosystem services are taken into account, matches the value of the water in each of the categories of use. The system of management advocated here advocates (but does not require) that hierarchy as a managerial touchstone.

Water management is difficult to accomplish, particularly when the authority to control the resource is dispersed across numerous power centers. The water itself is a transient common pool resource that moves between jurisdictions as it is used and reused for a variety of important purposes, both instream and offstream. Hydrologic conditions change, literally, as often as does the weather. The movements of the water are affected by many people and most water control facilities are regulated by both the states in which they are located and the federal government. The water is part of complex systems about which information is incomplete, but they are systems for which the models are becoming more accurate and for which whole arrays of simulations can be quickly run and evaluated.

Management requires an effective manager, which means a manager with sufficient resources to craft a plan and with authority to implement the plan. In the United States, most resource planning has always relied on the national government to provide the fiscal resources and expertise that enable effective data collection and study to develop a plan. The Constitution distributes authority through a federal system which, in the water resources area assigns states primary authority over resources such as water. At

Also, the CZMA-like model is not the only one capable of fashioning more favorable interstate management than seen in the ACF or other similar instances. For example, the Great Lakes States agreed on a management framework for the basin’s waters where each state retains independence in its regulatory mechanisms. See, Great Lakes-St. Lawrence River Basin Water Resources Compact, Pub. L. No. 110-342, 122 Stat 3739 (Oct. 3, 2008). For the framework principles of that agreement and their federalism aspects, see Noah D. Hall, Toward a New Horizontal Federalism: Interstate Water Management in the Great Lakes Region, 77 U. COLO. L. REV. 405 (2006).
nationhood, the states became the stewards of the resources for the benefit of the people. Even so, the federal government has powers needed to make the several states a single nation by resolving their disputes. When exercising its enumerated powers the federal government has supremacy clause authority to displace the states. Alternatively, and more often, the federal government has the option of allowing concurrency -- not displacing the states, or even empowering them for the good of the nation. The federal government should take this latter approach with water resources in the East.

Management also requires a manager with the operational capacity to implement the management plan. At present, the states have little ability to control the operations of the physical facilities, dams and reservoirs, needed to operationalize water management in the East. The federal government and its licensees are in control of almost all of the water control levers. For state management of water resources to succeed, Congress must give the states and their water management plans a role in controlling water facility operations.

Congress has enabled that precise blend of federal effectuation of state capacity in another nationally important resource management context by enacting the Coastal Zone Management Act. That law establishes a coordinated framework for managing activities affecting an entire resource complex. Congress encouraged the states to use their police power to plan for the wise use of the coastal zone, a form of planning the federal government may not be authorized to undertake. The incentives offered the states were money for planning and a degree of subordination of the potentially supreme federal activities affecting the coastal zone to state control by requiring that federal activities in the coastal zone must be consistent with state plans.

That same type of approach offers a sagacious way to overcome many of the obstacles to water management in the Eastern United States. The failure to take such action seems destined to perpetuate an unworkable system, in which water allocation battles are fought across many fronts to inconclusive and unsatisfying results that do not manage the resource to protect the nation’s most pressing water needs. It is time to manage water in the East, before too many more “Water Wars” are fought and even more uses are initiated in reliance on a water allocation system that cannot support them.