

**BROADENING NARROW PERSPECTIVES AND
NUISANCE LAW: PROTECTING ECOSYSTEM SERVICES
IN THE ACF BASIN**

ROBERT HASKELL ABRAMS¹

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I. INTRODUCTION

The political stalemate among the neighboring states of Georgia, Alabama, and Florida over the cooperative management of the Apalachicola-Chattahoochee-Flint (ACF) River Basin has been chronicled in numerous articles in the past.² Along with the

1. Professor of Law, Florida A & M University College of Law. The author would like to thank several friends and colleagues for their helpful comments on drafts and for ideas that have found their way into this article. They are Pam Bush, Noah Hall, Zyg Plater, and J. B. Ruhl. The author also wishes to thank Nicolette Tsambis, FAMU College of Law, Class of 2008, for her research assistance and the Florida A & M University College of Law for the research grant that supported this work.

2. See, e.g., Charles DuMars & David Seeley, *The Failure of the Apalachicola-Chattahoochee-Flint River Basin and Alabama-Coosa-Tallapoosa River Basin Compacts and a Guide to the Successful Establishment of Interstate Water Compacts*, 21 GA. ST. U. L. REV. 373 (2004); Carl Erhardt, *The Battle over “The Hooch:” The Federal-Interstate Water Com-*

neighboring Alabama-Coosa-Tallapoosa (ACT) River Basin, the ACF Basin was the subject of an interstate compact³ in which the three states solemnly covenanted to agree to try to agree,⁴ yet failed.⁵ With efforts at negotiation effectively ended, the struggle over the uses of the ACF Basin has resumed unabated on the water⁶ and in the courts.⁷

A river basin is a resource shared by many users. In Twenty-First century America, the ACF Basin can hardly be imagined to be an unregulated commons.⁸ Nevertheless, many aspects of Garrett Hardin's famous description of "The Tragedy of the Commons"⁹ apply. Existing regulatory controls do not consider basin-wide best interests. Rather, existing regulatory controls only con-

compact and the Resolution of Rights in the Chattahoochee River, 11 STAN. ENVTL. L.J. 200 (1992); Douglas L. Grant, *Interstate Allocation of Rivers Before the United States Supreme Court: The Apalachicola-Chattahoochee-Flint River System*, 21 GA. ST. U. L. REV. 401 (2004); George William Sherk, *The Management of Interstate Water Conflicts in the Twenty-First Century: Is it time to call Uncle?* 12 N.Y.U. ENVTL. L. J. 764 (2005); Benjamin L. Snowden, *Bargaining In The Shadow Of Uncertainty: Understanding The Failure of the ACF And ACT Compacts*, 13 N.Y.U. ENVTL. L.J. 134 (2005); C. Hansell Watt, IV, *Who Gets the Hooch? Georgia, Florida, and Alabama Battle for Water from the Apalachicola-Chattahoochee-Flint River Basin*, 55 MERCER. L. REV 1453 (2004).

3. U.S. CONST. art. 1, § 10, cl. 3; Josh Clemons, *Interstate Water Disputes: A Road Map for States*, 12 SE. ENVTL. L.J. 115, 129-31, 137-39 (2004).

4. ACF Compact, Pub. L. No. 105-104, 111 Stat. 2219 (1997); ACT Compact, Pub. L. No. 105-105, 111 Stat. 2233 (1997).

5. In September 2003, Florida broke the ACF compact with Georgia and Alabama; in August 2004, Alabama halted negotiations for the ACT compact. J.B. Ruhl, *Water Wars, Eastern Style: Divvying Up the Apalachicola-Chattahoochee-Flint River Basin*, 131 J. CONTEMP. WATER RES. & EDUC. 47, 50 (2005).

6. See, e.g., Press Release, Gov. Sonny Perdue, Moratorium on Water Permits for Flint River Basin to be Lifted (Mar. 11, 2006), available at <http://www.gov.state.ga.us/press/2006/press1087.shtml> (last visited June 13, 2006). See also Robert Abrams, *Georgia DNR Issues The Flint River Basin Regional Water Development and Conservation Plan: Moratorium on Farm Water Use Permits Lifted*, 1 E. WATER L. & POL'Y REP. 174 (2006).

7. Robert Abrams, *Eleventh Circuit Refuses to Enjoin U.S. Army Corps of Engineers from Taking Steps to Finalize Lake Lanier Water Supply Contracts*, 1 E. WATER L. & POL'Y REP. 22 (2006). See also, *Alabama v. Corps of Eng'rs*, 424 F.3d 1117 (11th Cir. 2005). Both the article and the Eleventh Circuit decision include a reasonable synopsis of the tri-partite litigation over the operation of the Chattahoochee River dams by the Corps of Engineers (Corps). The three strands of litigation were all brought in different federal jurisdictions. This Eleventh Circuit decision was brought by Alabama (joined later by Florida) against the Corps in Alabama federal court. A suit by Georgia was brought against the Corps in the Georgia federal court, and a suit by power producers was brought against the Corps in the District of Columbia federal court. On July 25, 2006, the United States District Court for the Northern District of Alabama denied a motion by Florida for an order requiring the Corps to maintain releases from the lowest dam in the system at 6,300 cfs until the date scheduled for release of the Fish and Wildlife Service biological opinion finding there had not been a "take" of an endangered species. *Alabama v. Corps of Eng'rs*, 441 F. Supp. 2d. 1123, 1124 (N.D. Ala. 2006).

8. A sampling of the laws affecting the basin includes the following: Federal Water Power Act of 1920, 16 U.S.C. § 791(a)-828(c) (2000); Fort Gains Project, Pub. L. No. 85-363, 72 Stat. 73 (1958); Rivers and Harbors Act of 1946, Pub. L. No. 79-525, 60 Stat. 634 (1946); Water Supply Acts, 43 U.S.C.A § 390 (2000).

9. Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243 (1968).

sider much narrower decisional criteria. Individuals and economic entities that use the ACF resourceplex, like Hardin's cow herds, remain encouraged to seek to maximize their beneficial use of the resource.¹⁰ In a fragmented and incomplete regulatory regime, the naked self-help appropriation of the benefits that typify users of Hardin's unregulated commons is replaced by the effort to win those same benefit-internalizing and cost-externalizing outcomes in the regulatory forum. Therein lies the need for cumulative and cooperative interstate management.

At the Ecosystem Services Symposium, this point was well made by the presentations of both Professor Neuman and Professor Tarlock: fragmented or special interest-dominated management of a unitary resource will not achieve good long term results. In Professor Neuman's chronicle of Oregon's Tillamook State Forest, the political pressure of well-organized and self-interested constituencies undermines the power of a management agency having sufficient breadth of authority to sustainably protect ecosystem services.¹¹ Equally, in Professor Tarlock's description of the Klamath River Basin, the Bureau of Reclamation, an agency with its own mission-driven agenda and local constituency, cannot reliably manage a resource in a way that protects ecosystem services for the longer term,¹² particularly in the face of extreme interest group pressure and political opportunism on the part of the Bush administration.¹³

This Article will canvas parallel ground in relation to the ACF Basin. In addition, this Article will consider the usual mantra about why the legal deck appears to be stacked against the bottom of the basin where the principal benefits of the water are derived from the ecological systems that are supported by a more natural flow regime.¹⁴ After that, however, the Article will explain how

10. This simplistic behavioral assumption underpins a great deal of welfare economics. See generally ROBERT COOTER & THOMAS ULEN, *LAW AND ECONOMICS* 3 (3d ed. 2000). Those assumptions are not a perfect reflection of human motivation and behavior, but they are a sufficiently accurate generalization to have predictive and descriptive utility.

11. See Janet Neuman, *Thinking Inside the Box: Looking for Ecosystem Services Within a Forested Watershed*, 22 J. LAND USE & ENVTL. L. 173 (2007).

12. See A. Dan Tarlock, *Ecosystem Services in the Klamath basin: Battlefield Casualties or the Future?*, 22 J. LAND USE & ENVTL. L. 209 (2007).

13. See, e.g., Tom Hamburger, *Water Saga Illuminates Rove's Methods; Bush Strategist Works Agencies in Bid to Make Policy Decisions Jibe with Political Goals*, WALL ST. J., July 30, 2003, at A4.

14. The upstream/downstream dichotomy is frequently going to dictate the power of a state to unilaterally impose its decisions on a neighbor. States abutting lakes or rivers also may find the actions of their neighbor incompatible with their desired use of the waterbody. See discussion of interstate lake pollution *infra* Part III.B. Upstream effects are relatively rare, but the movement of fish in an interstate stream might give the upstream state a claim. See *infra* Part III.B. Also, in the west, where priority of use plays so prominent a role in the fabric of water allocation law, an upstream state could be the later developing

the greatly expanded understanding of ecosystem services that has come about in recent decades can be a counterweight to insular decisionmaking. The legal vehicle for that transformation is interstate public nuisance and the core principles of state sovereignty that it enables. Neither of two late twentieth century developments, preemption by comprehensive federal water pollution control legislation nor a change in equitable apportionment doctrine, are sufficient to contradict that conclusion.

II. DECISIONS REGARDING THE ACF BASIN

As a highly simplified matter, the ACF Basin has three distinct parts. In the north and west, the features of greatest consequence are the Chattahoochee River and the two major United States Army Corps of Engineers (Corps) dams on its mainstem that control the river's flow. The upstream Burford Dam, that forms Lake Lanier in proximity to the metropolitan Atlanta area, is a flashpoint for efforts to influence how the Corps manages both the lake levels and the timing of its releases. The parties most ardently contending for the Corps' favor are Atlanta and nearby municipalities, hydroelectric power providers, and users in Alabama and Florida far downstream who rely on ecosystem services and related benefits that the river has historically been available to provide. The Corps' operations at dams lower on the Chattahoochee River have more recently become a focus of debate.

The second distinct part of the ACF system is its east and central feature, the Flint River, that flows southward through central Georgia and then turns west to join the Chattahoochee River and form the Apalachicola River at the border with Florida and Alabama. This rural central Georgia region is dominated by irrigated agriculture that depends on direct withdrawals from the Flint River and, increasingly, on pumping hydrologically connected groundwater. The irrigation increases agricultural yields. Historically, the Flint River is responsible for somewhat more than forty percent of the basin's summer flow. In this part of the basin, the regulator is the Georgia Department of Natural Resources Environmental Protection Division (EPD) which is charged with permitting responsibilities for withdrawals of water.¹⁵ The contestants seeking EPD's favor in this context are the mid-Georgia farmers and the environment, both the riparian environment in the Flint Basin and downstream, as the Apalachicola flows through

state and face a claim that the water is already committed to downstream use. See discussion of the Vermejo River cases *infra* Part III.C and note 97.

15. See discussion *infra* Part II.C and notes 47-48.

Florida to sustain the river's delta and the estuarine environment of Apalachicola Bay in the Gulf of Mexico.

The third distinct part of the system is the Apalachicola system. That river meanders through the ecologically rich Florida panhandle and then provides critical freshwater flows into the Apalachicola bay. This is a sparsely populated region rich in scenic beauty. Economically, this region derives its benefits directly from the ecosystem services—literally harvesting some of them by oystering, but also by taking advantage of the beauty to promote tourism and recreational water use.

With three so distinct features, and with a geopolitical posture spanning three states having differing relationships to the resource, the decision of how the ACF Basin should be used is a source of conflict. There have been serious efforts by the three states to manage the basin as a whole by interstate compact. Both preceding that effort and in its wake are actions by the Corps on the Chattahoochee and the EPD on the Flint that are determining the uses made of the basin's waters.

A. Interstate Compacts as a Mechanism for Comprehensive Basin Management

In the ACF basin, the comprehensive management story is no better than in most basins; some might contend it is worse. Early in the 1990s, the ACF dispute became heated when the Corps indicated it would try to make permanent a decade old temporary practice of providing excess water to Atlanta area water agencies to increase municipal supply.¹⁶ Alabama and, shortly thereafter, Florida, made legal objections.¹⁷ Georgia intervened on the side of the Corps and the case promptly moved from court to the negotiating table.¹⁸ The negotiations were protracted, lasting more than a decade. The negotiations were carried out in good faith, as evidenced by the unusual step that the parties took. They entered into an interstate compact, the purpose of which was to work out an agreed allocation of the basin's waters.¹⁹ Eventually, the states failed to agree as hoped and the allocation issue returned to the courts.²⁰

16. This history is recounted in *Georgia v. U.S. Army Corps of Eng'rs*, 302 F.3d 1242, 1246-49 (11th Cir. 2002).

17. The history of this branch of the litigation is best set out in *Alabama v. U.S. Army Corps of Eng'rs*, 424 F.3d 1117, 1121-23 (11th Cir. 2005).

18. Memorandum of agreement between Alabama, Florida, Georgia, and United States Army, Jan. 3, 1992.

19. ACF Compact, Pub. L. No. 105-104, art. I, 111 Stat. 2219 (1997).

20. The Compact was terminated on September 1, 2003. At that time, the sovereign

In the ACF Basin, the chance for a holistic view of the basin as the foundation for management died with the failed ACF Compact (Compact). In fact, as is the case in most shared basins over which there is a significant degree of interstate competition for the water, the chances for holistic management were slight even before the Compact failed. As the desired endpoint of the effort was quantified allocation in the ACF, the chances for comprehensive management had been diminished by the Compact itself, which simply referred to its intent as follows: "to develop an allocation formula for equitably apportioning the surface waters of the ACF Basin among the states while protecting the water quality, ecology and biodiversity of the ACF . . ." ²¹ Had a water allocation of the kind the Compact contemplated been achieved, a simple division of the available water, the Compact would not have managed the basin's water in a comprehensive or holistic fashion. ²² Florida understood that mere allocation was inadequate from its perspective. David Struhs, Secretary of the Florida Department of Environmental Protection, was quoted as saying, "Florida was unable to accept only minimum flows, plus whatever else the upstream states were not able to consume or store. This would place too great a risk on one of the most naturally productive rivers and bays in the United States." ²³

Simple water allocation, almost invariably, is the enemy of well-coordinated basin management. Allocation quantifies rights and obligations in each of the party states. States treat their allocation as an insular umbrella of entitlement under which a state's water users operate in relative isolation from concerns relating to the sustenance of the larger resource. ²⁴ As long as delivery obligations are the defining element of the compact, the upstream state has no economic self-interest or legal obligation to maximize the benefits downstream. Rather, a fairly predictable scenario would be for an upstream state to regulate its use to provide water toward its downstream delivery obligation in low demand seasons (typically October through May) ²⁵ and restrict the water released

protagonists returned to the court trying to legally constrain the Corps' choices.

21. ACF Compact, art. VII, 111 Stat. at 2222-23.

22. Cf. DuMars & Seeley, *supra* note 2, at 374-75 (describing the variety of delivery obligation clauses present in interstate compacts).

23. *Florida to take Georgia, Alabama to court over water rights*, U.S. WATER NEWS ONLINE, Sept. 2003, <http://www.uswaternews.com/archives/arcrights/3floto9.html>.

24. Robert H. Abrams, *Secure Water Rights in Interstate Waters*, in WATER LAW: TRENDS, POLICIES, AND PRACTICE, 330, 331-334 (Kathleen Marion Carr & James D. Crammond, eds. 1995); Robert Haskell Abrams, *Interstate Water Allocation: A Contemporary Primer for Eastern States*, 25 U. ARK. LITTLE ROCK L. REV. 155, 169-70 (2002).

25. In the Flint River portion of the ACF Basin, the irrigation season is April through September. See discussion *infra* Part II.C and note 47.

to flow downstream in high demand seasons. In many cases, as in the ACF, the high demand season is the summer growing season is also the hydrologic low flow season. In that scenario, the upstream state maximizes its benefits by reducing flow by the greatest amount when the river's hydrograph is already at a low flow stage.²⁶ This is rational management under an annual delivery obligation, but poor management of the resourceplex.

Two compacts have departed significantly from a simple delivery obligation allocation model: the Delaware River Compact²⁷ and the Susquehanna River Compact.²⁸ These two compacts give the compact commission broad regulatory powers that allow for basin management and coordination of activities in the signatory states to best serve the larger interests of the basin. In the Delaware River Compact, the managerial power is coordinated with the central allocational principles that, in a very general way, balance New York City's water supply interests against the remaining basin uses. Nevertheless, the power of the Delaware River Basin Commission (DRBC) has provided numerous opportunities for basin-wide benefit maximizing projects and policies.²⁹

An example of the DRBC at its best was its response after a record drought in the 1960s eclipsed the drought of 1929-33.³⁰ This earlier drought had served as the previous basis for the maximum diversions and minimum releases from New York City's Delaware Basin reservoirs that were established by a Supreme Court decree in 1954.³¹ Through the 1960s drought and subsequent dry periods, the Commission provided a forum for the basin states and New York City to negotiate a series of ad hoc reductions to the out-of-basin diversions accorded New York City and to the minimum flows it was required to maintain in the main stem Delaware River at Montague, New Jersey.³²

In the late 1970s, the Commission convened the Decree Parties, including the four basin states and New York City, for intensive good faith negotiations to improve interstate water management in the basin, particularly during drought. Over a period of three years, the parties reached a set of consensus recommenda-

26. See the ACF Basin Flow Appendix for a figure that depicts the Flint River annual hydrograph, <http://waterdata.usgs.gov>.

27. Delaware River Basin Compact, Pub. L. No. 87-328, 75 Stat. 688 (1961).

28. Susquehanna River Basin Compact, Pub. L. No. 91-575, 84 Stat. 1509 (1970).

29. The details enumerated in the examples of DRBC functioning that follow were provided to the author by Pamela M. Bush who currently serves as Secretary and Assistant General Counsel of the Delaware River Basin Commission [hereinafter *Pamela M. Bush Testimony*].

30. *Id.*

31. See *New Jersey v. New York*, 347 U.S. 995, 995-1002 (1954).

32. *Pamela M. Bush Testimony*, *supra*, note 29.

tions, including a set of drought operating curves, which, with the benefit of incremental tweaks in later years, called for stepped down diversions by both New York and New Jersey and proportional reductions in the Montague flow target during conditions defined as “drought watch,” “drought warning” and “drought.” With the consent of the Decree parties, these curves were adopted as regulations by the DRBC in 1982. Since then, objective indicators trigger certain reductions automatically, enhancing the dependability of Delaware Basin water supplies by conserving water in the City’s drinking water reservoirs while simultaneously protecting downstream uses. Other good faith recommendations enacted as DRBC regulations allow the Commission to draw on private power company reservoirs and state and federal multi-purpose reservoirs to augment Delaware River flows in order to repel salt and protect water supply intakes in the Delaware Estuary and Bay, while also allowing New York City to maintain adequate water levels in its reservoirs.

The Commission is not rooted in place; instead, it adapts its management to changing understandings of the basin’s cumulative best interest. For example, the Commission acknowledged and responded to a steadily increasing demand by the public for instream flows to protect ecological and recreational uses by adaptively managing the water resources. Flows were increased to meet the needs of aquatic life and the demands of anglers, boaters, and other recreational users that are now deemed a vital management objective, although such needs were not contemplated by the Supreme Court when it apportioned the waters of the Delaware River fifty years ago.³³

In this endeavor, the DRBC has reached out to embrace new partners. For example, a key advisory subcommittee on Ecological Flows, created in 2003 to advise DRBC’s Regulated Flow Advisory Committee, is chaired by a Nature Conservancy staffer. Similarly, the Delaware River Foundation, a group comprised of fishing guides and others whose livelihoods depend upon the cold water fishery created by New York City’s reservoir releases, is a key partner in defining the shortcomings of past release regimes and in proposing alternatives. Through the Commission’s advisory committees and other collaborations, DRBC is building a common base of knowledge and consensus in the Basin community on such vital topics as the need for additional storage. A study is underway for expanding two of the New York City reservoirs, while a sophisticated flow model is shared by participants to test different

33. See *New Jersey v. New York*, 347 U.S. 995 (1954).

release scenarios for operating the existing reservoirs. The study results will provide the basis for instituting improved release regimes in the future. This process exemplifies the ability of an institution like the DRBC to continually assimilate new information and participants, to coordinate the activities of these participants, and to generate multiple alternative solutions to water resource problems.

Taking a step back and comparing the DRBC to the more typical allocation compact commission, it is evident that the DRBC atypically approaches its basin without allocation as its mantra. Part of its success in this regard is attitudinal—the Commission has always operated as a regional manager, not a commission made up of state players representing their individual interests under a fixed allocation. No doubt there are functional management imperatives, such as maintaining an adequate supply of water for New York City. Nevertheless, the DRBC has been able to honor those real-world water supply imperatives, the Commission while also establishing multi-state basinwide benefits as its goal. No one successfully championed this sort of basin management structure for the ACF.

B. “Management” by Mission-Driven Agencies

Throughout the compact process in the ACF basin, the Corps continued to manage the Chattahoochie basin according to its own plans for operations with little fanfare. Perhaps the parties believed that the compact process would effectively supplant the Corps’ role in water allocation by making it subordinate to the compact agreement.³⁴ Whatever may have transpired in the wake of a successful compact allocation, with the failure of the ACF Compact, the Corps was again front and center.

The Corps, in addition to controlling the operation of the largest dams in the system, also controls the award of many of the sys-

34. The ACF Compact in Article X(c) addressed the relationship to other laws and the Corps’ dam operations. The Compact, due to congressional ratification, enjoys the status of federal legislation. It states that the Corps and other federal agencies, “to the maximum extent practicable, shall exercise their discretion in carrying out their responsibilities, powers, and authorities over water resources in the ACF Basin and water resource facilities in the ACF Basin in a manner consistent with and that effectuates the allocation formula developed pursuant to this Compact.” What that language did not do is change the mandates of the federal laws that govern Corps operations in the basin. In practical effect, the language of that provision removed most of the Corps’ discretion to allocate excess water, but did not change its obligations in managing for statutory purposes of power generation and flood control, for example. The Compact would not have taken fights about Corps’ decisionmaking out of the equation, but it would have limited the contests among the states in that regard. ACF Compact, Pub. L. No. 105-105, 111 Stat. 2233, 2239-40 (1997).

tem's water benefits among the competing resourceplex users. The Corps' operation of its dams not only affects the upstream-downstream distribution of benefits, but also mediates competing claims to upstream benefits. Cities want the Corps' dams operated to ensure them of secure and increased water supply as a primary goal and of summer flat-water lake-based recreation as a secondary goal. That management regime is, to a considerable degree, in conflict with the interests of hydropower producers whose generation opportunities are directly impacted by the withdrawal of water for municipal use from the system that bypasses the outlet dams. Power producers are also affected by the timing of releases from the Corps' dams and by the holding of water as a hedge against drought. In a somewhat oversimplified view, that conflict has three prongs: diversion, storage, and timing. The power producers on the Chattahoochee River desire to have all of the water in reservoirs released through the dams. They want substantial releases in the summer, which is their period of peak demand, and at other times the power producers want reliable releases so that they can plan their mix of power sources efficiently. The cities want some of the water diverted from the reservoirs for municipal use. For those diversions the return flow, if any,³⁵ would be released below the dam. The cities, consistent with prudent flood control, also want Lake Lanier kept as full as possible. This gives them a hedge against future droughts and, concurrently, maximizes recreational opportunities for the inhabitants of the metropolitan region.

The Corps' decision regarding municipal diversions, timing, and releases, flows downstream to the ACF Basin's other users. The resultant operating regime, to whatever degree it favors the cities, is likely to be suboptimal for other users whether it is the hydropower suppliers, the irrigators in the middle of the basin, or those who benefit from summer freshwater fisheries. Still other users, such as the oystering community in Apalachicola Bay, who require the river to retain its natural flow patterns, are likely to suffer losses when the Corps operations do not mimic natural

35. In a national trend, more and more sewage effluent is being reused for landscape and golf course irrigation rather than being returned to the rivers. There are a number of benefits to this practice. On the quantity/supply side, (1) the treated effluent is substituted for additional withdrawals of groundwater or surface water and (2) the water is being substituted for more expensive potable water deliveries. On the quality side, even though treated, the sewage effluent is, in most cases, of lower quality than the receiving body quality, especially in regard to nutrients. This is a significant problem in many riverine environments. See, e.g., *Ariz. Pub. Serv. Co. v. Long*, 773 P.2d 988 (Ariz. 1989). See also, e.g., G. Oliver Melgar, *Sewage Effluent Happens: But Who Has the Right to Its Beneficial Use?*, 24 J. LAND RESOURCES & ENVTL. L. 587 (2004); Robert Abrams, *Northeast Florida Increases Residential Irrigation with Treated Sewage Effluent*, 1 E. WATER L. & POL'Y REP. 167 (2006).

flows. If, however, the Corps operated the dams on a pass-through basis, mimicking the natural hydrograph (other than to prevent major flooding), the cities and power producers would be harmed. In that way, the Corps is a de facto river basin manager.³⁶ The Corps, acting pursuant to its legal authority, decides who gets to use the water at what time and thereby imposes external costs on the loser of the allocation contest.

The Corps enjoys several layers of authority when it operates the dams under its control. The first layer is dam-specific, that is, every dam has legislation that authorizes it and specifies the purposes for which the dam is to be operated, or the program of which the dam is a part, which in turn will have program purposes that attach to the dam by reference. For example, on the Chattahoochee, Buford Dam that forms Lake Lanier was authorized by the Rivers and Harbors Act of 1945.³⁷ That legislation effectively designated flood control and hydroelectric generation as the sole purposes for the dam.³⁸ The legislative history and the report of Lt. Gen. R. A. Wheeler, Chief of Engineers that described the rationale for the dam, indicated that downstream navigation in the Appalachicola River and municipal water supply for Atlanta were adjunct benefits of the dam, but “Congress gave no priority to the use of Lake Lanier’s waters for such purposes,” nor were any of the costs of the project allocated to either of those purposes.³⁹ That mandate was supplemented by more general authority granted to the Corps by the Water Supply Act of 1958⁴⁰ and, possibly, the Flood Control Act of 1962.⁴¹ The Water Supply Act expressly allows the Corps to reallocate water under its control to municipal supply. However, congressional authorization is required if the

36. The Corps has painful experiences of being cast in that role. See Sandra B. Zellmer, *A New Corps of Discovery for Missouri River Management*, 83 NEB. L. REV. 305 (2004); see also JOSEPH SAX, ET AL., LEGAL CONTROL OF WATER RESOURCES 87-97 (4th ed. 2006) [hereinafter SAX, LEGAL CONTROL].

37. Act of July 24, 1946, ch. 595, 60 Stat. 634.

38. See George William Sherk, *The Corps’ Conundrum: Reconciling Conflicting Statutory Requirements in the ACF River Basin*, PROCEEDINGS OF 2005 GA. WATER RESOURCES CONF., U. GA. 1 (Apr. 25-27, 2005), available at <http://www.uga.edu/water/GWRC/Papers/SherkJ%20Corps%20Conundrum.pdf> [hereinafter Sherk, *Conundrum*].

39. *Id.* at 2.

40. 43 U.S.C. § 390b (2000).

41. Pub. L. No. 87-874, § 203, 76 Stat. 1173, 1182 (1962). The Flood Control Act of 1962 served as authorization for the West Point Dam which sits downstream of the Buford Dam and has no direct application to Buford Dam. The shared flood control purpose can, accordingly, be served by coordinated management of the two dams. The ambiguity here is that the portion of the 1962 legislation authorizing the West Point Dam also gives a high priority to fish, wildlife, and recreational use of West Point Lake. Jerry Sherk argues that this later-in-time authority favoring fish, wildlife, and recreation values downstream limits the Corps’ discretion in managing Buford Dam to favor other purposes. Sherk, *Conundrum*, *supra* note 38, at 3.

reallocation “[W]ould seriously affect the purposes for which the project was authorized . . . [or] involve major structural or operational changes”⁴²

With the Corps operating pursuant to that framework, the efforts to manipulate the water outcomes by “winning” with the Corps come into clearer view. Atlanta, needing increased municipal supply, obtained it first by receiving temporary allocations which the Corps did not believe met the threshold for requiring congressional approval as a reallocation due to their temporary, albeit recurrent, nature. When Atlanta municipalities wanted to further increase the amount and make the source secure, it triggered the 1989 determination of the Corps that it was time to seek congressional authorization to reallocate storage space in Lake Lanier for municipal and industrial water supply. This would allow the Corps to enter into the proposed water storage contracts with local water supply providers. That choice by the Corps provoked the two losers in the process, the hydropower producers and the downstream states, to take action (litigation) to try to force a different outcome than the one that the Corps had selected as its plan for the Basin’s waters.

What matters here is not the wisdom of the Corps’ decision. Rather, the importance rests with what factors the Corps was legally required to consider, legally permitted to consider, and what factors it was legally required to ignore. Arguing for the narrow view, the Corps has its mission prescribed for it by Congress and can manage the resource only for the explicit statutory purposes relating to Buford Dam, flood control, and hydropower. That management does not consider the downstream effects. Even under the Water Supply Act, the calculus is whether there is water surplus to the authorized purposes of the dam in question that can be allocated to municipal supply. Again, that decision takes no account of downstream effects.⁴³ It is possible to argue somewhat

42. 43 U.S.C. § 390b(d) (2000).

43. Colonel Bob Keyser, one of the Corps key players in the ACF management, espoused a broad view of the Corps’ sense of its role and authority. He stated at the Appalachian-Chattahoochee-Flint River Basin Stakeholder’s Meeting, held December 5, 2002 in Columbus, GA, on ACF issues facing the Corps:

I’m sure you all have heard before the seven purposes to the ACF system, seven authorized purposes: navigation, hydropower, fish and wildlife, flood control, recreation, water supply, water quality...And I dare say that everybody in this room has got a claim to the water in the ACF system for one of those purposes...My job is to balance all those seven purposes and the needs of everybody that’s in this room, realizing a lot of those are competing interests a lot of times.

Transcript of the Appalachian-Chattahoochee-Flint River Basin Stakeholder’s Meeting,

formally that the National Environmental Policy Act of 1969 (NEPA) mandates the Corps to evaluate downstream environmental effects in the decisional process leading up to seeking legislative authorization for reallocation to municipal supply.⁴⁴ That is part of the literal command of NEPA, but that law has been authoritatively interpreted to have no substantive impact.⁴⁵ The ecosystem services in the bottom of the basin, even if studied by the Corps, are not meaningful contenders for water allocation when the Corps manages the Buford Dam and effectively determines the largest component of the flow regime on the Chattahoochee River.⁴⁶

C. Management by Single-State Authority

The Corps is not alone as a de facto resourceplex manager in the ACF Basin. The Georgia Environmental Protection Division of the Georgia Department of Natural Resources (EPD) is given primary control in the administration of Georgia's waters including both surface water⁴⁷ and groundwater.⁴⁸ EPD permits are required for water withdrawals for industrial, municipal, or agricultural use that have the capacity to exceed 100,000 gallons per day.⁴⁹ Thus, EPD has the power to control irrigation and other uses of Flint River water and hydrologically connected groundwater from the Floridan Aquifer.

The mutually reinforcing combination of drought and increased irrigation activities by Flint River Basin farmers thrust EPD squarely into the middle of Flint River management. A severe drought that began in 1998 prompted all existing water with-

11-12 (Dec. 5, 2002), available at

<http://www.sam.usace.army.mil/briefings/ACT-ACF/ACFMtg12-05-02Transcript.pdf>.

44. National Environmental Policy Act of 1969, Pub. L. No. 91-190, 83 Stat. 852 (codified as amended at 42 U.S.C. §§ 4321-4361 (2000)). Proposals for legislation are agency actions that require an Environmental Impact Statement. 42 U.S.C. § 4332(C) (2000). Subsection (v) of that provision further makes clear the timing of the EIS is such that it "shall accompany the proposal through the existing agency review processes." *Id.*

45. Somewhat unhelpfully in this setting, NEPA insists that the Corps consider alternatives that can ameliorate adverse environmental effects, but section 105 of NEPA, 42 U.S.C. § 4335 (2000), makes NEPA's policies and goals "supplementary to those set forth in existing authorizations" has not been construed in a substantive manner that would grant the Corps authority to allocate water to environmental purposes.

46. The one exception to this statement is the requirements imposed on the Corps by section 7 of the Endangered Species Act. 16 U.S.C. §§ 1531-1544 (2000). A recent effort to control Corps' action on that basis has, thus far, failed. See *Alabama v. Corps of Eng'rs*, No. CV-90-BE-01331-E, 2006 WL 2106991 (N.D. Ala. July 25, 2006). See discussion *infra* Part II.C.

47. Georgia Water Quality Control Act, GA. CODE ANN. § 12-5-20 to -53 (2006).

48. Ground-water Use Act of 1972, GA. CODE ANN. § 12-5-90 to -107 (2006).

49. GA. CODE ANN. § 12-5-31(a)(1)(A) (2006) (surface water); § 12-5-96 (a)(1) (2006) (groundwater).

drawal permit holders to begin using maximum amounts and generated a veritable flood of new groundwater irrigation permit applications. Most of the groundwater being sought in the new permits was to be pumped from areas of the Floridan Aquifer that produce large amounts of tributary groundwater that constitute the base flow of the Flint River. Even before most of the permit applications were considered, already permitted withdrawals of ground and surface water began to dry up segments of the Flint River, particularly in the southern reaches of the basin. Already existing models and studies that had been conducted up to that time predicted “a severe impact on the Flint River and some of its tributaries under conditions of drought and increased irrigation withdrawals from the Floridan aquifer.”⁵⁰ As a response, the Director of EPD, on October 23, 1999, invoked statutory authority to develop the Flint River Basin Regional Water Development and Conservation Plan (Flint Plan),⁵¹ to study the basin and set operating parameters for EPD in its permitting activities.

Announcing the Flint Plan had a paradoxical short-term effect as it significantly increased irrigation withdrawals because of the permit rush it engendered.⁵² In basins subject to such a plan, permits issued for twenty-five years or more, which include farm use permits, can only be issued in accordance with the plan. The announcement that there would be a Flint River Basin Plan sparked an immediate spike in permit applications of would-be-irrigators hoping to get a permit that would not be subject to whatever restrictions the Flint Plan called on EPD to impose. Approximately 1,500 such applications were received between October 23 and the end of November, 1999, and were acted upon under the old standards for permits during the following year.⁵³ EPD thereafter responded to the continuing application rush with a moratorium, indicating it would process no new permit applications received after December 1, 1999 until after the entire study of the basin and a plan for its acceptable management could be completed.⁵⁴

50. GA. DEP'T OF NATURAL RES. ENVTL PROT. DIV., FLINT RIVER BASIN REGIONAL WATER DEVELOPMENT CONSERVATION PLAN 37 (2006), <http://www.gadnr.org/frbp/Assets/Documents/Plan22.pdf> [hereinafter FLINT PLAN].

51. See GA. CODE ANN. § 12-5-31(h) (2006) (surface water); GA. CODE ANN. § 12-5-96(e) (2006) (groundwater).

52. The Flint Plan does not give a figure for how much water was involved only the number of such permits which represents at least a seven percent increase in the number of permitted withdrawals.

53. EPD believed that many of those applications were duplicates; they eventually acted upon 900 such applications during the next year. FLINT PLAN *supra* note 50, at 39-41.

54. FLINT PLAN *supra* note 50, at 39. Since the moratorium, 1,134 permits have been “backlogged” representing requests to irrigate an additional 95,000 acres. *Id.* at 30, 41.

Basinwide on the Flint there is some mix of uses, but the real subject of the Flint Plan is irrigation and that concern dominates over all others. Municipal and industrial (M&I) uses are few. In the less stressed northern part of the basin “permitted [M&I] use is substantially less than agricultural water use.”⁵⁵ In the critical southern part of the basin, “[T]otal M&I withdrawals represent less than 3% of agricultural irrigation withdrawals . . . [and] their cumulative impact on stream-aquifer flux and the regional groundwater budget is negligible.”⁵⁶

The Flint Plan is a good effort in some regards. It is replete with carefully developed data. As reports of this kind go, the EPD Flint Plan is more transparent than most.⁵⁷ It acknowledges that it is trying to find a decision matrix that allows the maximum economic development consistent with acceptable levels of adverse ecological impacts.⁵⁸ As it considers setting the maximum allowable withdrawals, the Flint Plan indicates cognizance of legal restraints imposed by (1) the federal Endangered Species Act,⁵⁹ (2) the federal Clean Water Act,⁶⁰ (3) property rights of riparians as recognized by Georgia’s regulated riparianism regime, and (4) property rights related to Georgia’s groundwater law.⁶¹

The Flint Plan, however, is not a balanced document. It sets as its regulatory goal the maximization of agricultural productivity from irrigation use of water consistent with maintaining the minimum amount of water in the river necessary to avoid illegal breaches of ecological protection responsibilities.⁶² The Flint Plan is candid. For example, the Flint Plan anticipates that its regulatory choices regarding past and future permitting in the most stressed regions of the Flint Basin will over-allocate the available water in low flow years with an adverse effect on the mussel populations and the Gulf striped bass population.⁶³ Even so, rather

55. *Id.* at 95.

56. *Id.* at 96.

57. The Flint Plan describes its methodologies carefully and, when methodological tradeoffs (e.g., expected cost of better data versus expected value of better data) are made, the Flint Plan notes them and what assumptions, if any, are used to address issues that the added data may have disclosed.

58. FLINT PLAN *supra* note 50, at 41-42. Perhaps hinting at how the balance might be tilted, Section 1.3, entitled “Conservation, development, and ecologic sustainability” begins that “An important aspect of this Plan is to consider the economic impact of any actions that would affect agricultural irrigation. Agriculture in Georgia is a \$9.9 billion industry, and \$1.9 billion of that is derived from agriculture in southwest Georgia...” *Id.* at 41.

59. 16 U.S.C. §§ 1531-1544 (2000).

60. Federal Water Pollution Control Act, 33 U.S.C. §§ 1251-1387 (2000).

61. FLINT PLAN *supra* note 50, at 42-44.

62. *Id.* at 52.

63. *See id.* at 51-52 acknowledging (but not reducing) “the amount of water *currently* withdrawn for agricultural irrigation in drought years increases both the magnitude and duration of low flows in streams of the FRB, thus further harming endangered species and

than limit additional permits, the Plan opts to rely on the Flint River Drought Protection Act,⁶⁴ under which the state must purchase forbearance from permit holding agricultural users to maintain critical stream flow.⁶⁵ Apart from being a bit of a fiscal albattross, the Flint River Drought Protection Act is unfunded and thus requires explicit legislative action to appropriate the money. Moreover, there is a chance that the statute will be inoperative in any year in which the severity of the drought is not foreseen before March 1, the date that marks the beginning of the spring planting season.⁶⁶ On the positive side, permits issued after the Plan is in place will require farmers to use conservation measures during periods of water shortage, but most of the water will already be allocated under pre-Plan permits that, together, already over-allocate water in times of shortage.⁶⁷

Given the state of affairs in the basin in low flow years, the Flint Plan treatment of the Endangered Species Act appears inadequate. There are four fresh water mussels and one species of gulf sturgeon found in southwest Georgia that are listed by the United States Fish & Wildlife Service (FWS) as endangered.⁶⁸ When it estimates costs of its alternatives, the Flint Plan describes very considerable impacts of the combination of drought and low flow that it will permit. Freshwater mussel populations in six separate stream stretches will suffer fifty to one-hundred percent die-offs.⁶⁹ The Flint Plan is clearly not the sort of approach that the FWS had in mind. The portion of the FWS website relating to

potentially limiting the amount of water available for all users." *See also, infra* text accompanying note 74 (discussing striped bass fishery).

64. GA. CODE ANN. § 12-5-540 (2006).

65. In two past low flow years the state paid roughly \$10 million to prevent permitted irrigation in the lower Flint Basin. These payments to the farmers combine with the fact that the irrigation is, in part, driven by crop subsidies. *See* discussion *infra* Part II.C.

66. This was the case in 2006 when a failure to appreciate the onset of drought led to passage of the March 1st date by which the Flint River Drought Protection Act could be triggered. In relation to the watering bans, put in statewide in response to the drought, Nap Caldwell, a senior EPD water planning and policy advisor, was paraphrased as having said, "Although the Flint River drainage basin uses the lion's share of water in the state, it's too late to trigger additional restrictions on farmers there this year." S. Heather Duncan, *State Restricts Outdoor Water Use: Drought Level One Means No Watering From 10a.m.-4p.m.*, MACON TELEGRAPH, June 22, 2006, available at <http://www.macon.com/mld/macon/news/local/14872944.htm>.

67. As a mixed metaphor, this is tantamount to closing the barn door after the river is dry.

68. *See* ACT ACF Water Issues, Georgia Ecological Service, http://www.fws.gov/athens/rivers/ACT_ACF.html (last visited June 10, 2006) [hereinafter ACT ACF].

69. FLINT PLAN *supra* note 50, at 70. Fifteen to fifty percent die offs are expected at another five locations. The Plan does not identify which species are involved. Thus, it is not certain on the face of the Flint Plan that listed species are the ones affected, but it is likely that the most stressed existing populations (i.e., the listed species) will be further affected by increased dewatering of the river.

listed species in the region, under the heading of “Solutions,” states as follows:

In order to protect the biodiversity of the [ACF and ACT] basins, the water allocation formulas should:

- Minimize departures from natural flow regimes.
- Allocate water for recognized near-term uses.
- Include federal reservoir operations guidelines in the formulas.
- Maintain and improve water quality.
- Monitor water use allocations, reservoir operations guidelines, and their effects on resources.⁷⁰

The Flint Plan is not on the same page.

For a rather telling comparison of the gravity with which ESA issues are approached by various actors in control of the ACF’s waters, the Corps is aware that its dam operations can affect spawning of the gulf sturgeon. In Spring 2006, a year that was already behind on rainfall and in which Corps’ reservoir levels heading into summer were low, the Corps operated its dams on a largely pass-through basis to ensure adequate water downstream to facilitate sturgeon spawning.⁷¹ That action prevented the reservoirs from being as full as possible heading into summer. Georgia Governor Sonny Perdue commented, “I don’t think Congress or the public intended increasing the sturgeon population by seven in the Apalachicola Bay should trump the drinking water needs of an entire metro population.”⁷²

Returning to the Flint Plan, its elaborate economic analysis is more justificatory than objective. When it measures benefits and costs it takes a wholly intrastate view. As a political and mission-related matter, it is understandable that EPD is most concerned about the effects of its plan on Georgia and its citizenry. Neverthe-

70. ACT ACF *supra*, note 68.

71. See Robert Abrams, *The Long Hot Summer Starts Early: Low Water, Endangered Species, and Congressional Posturing Usher in the Season on the Chattahoochie River*, 1 E. WATER L. & POL’Y REP. 196 (2006).

72. The Governor apparently was referring to the fact that as few as seven sturgeons were observed in the breeding areas. See Stacy Shelton, *Anxiety Over Lake Lanier and Beyond - High and Dry?*, ATLANTA J.-CONST., June 8, 2006, at A1, available at <http://infoweb.newsbank.com/iw-search/we/InfoWeb> (search “anxiety over lake Lanier” in “2006”; then follow the only hyperlink under results) (last visited Aug. 8, 2007). For data on the levels in the reservoirs, see Jerome Thompson, *Downstream Doings*, ATLANTA J.-CONST., June 8, 2006, A1.

less, ignoring downstream costs of low flows and downstream benefits of higher flows is not a proper way to conduct benefit-cost analysis.

As a further point of imbalance, the cost accounting was not conducted in the same way as the benefit accounting. Benefits were monetized and, as seen below, inflated by questionable assumptions; costs are described only in narrative terms with no effort to quantify their impact either in economic or resource values. The concept of ecosystem services plainly is not in evidence.

The Flint Plan notes that quite significant mussel die-offs have occurred in some stream stretches and are directly attributable to pumping at pre-moratorium irrigation levels.⁷³ It then goes on to note that further mussel die-offs will ensue, but makes no estimate of their magnitude. It does not state whether the mussel species affected are those that are listed as endangered by the FWS, nor does it make an effort to quantify the loss in economic terms. The positive effect of the mussels on water quality is not mentioned or even compared to the cost of typical M&I filtration to accomplish the same result. The gulf striped bass discussion is only a little better. A reader of the report can infer that the striped bass population in the lower Flint is already stressed at current withdrawal levels as evidenced by the fact that the population is sustained at recreationally valuable levels in the region by stocking. The report then explains that additional aquifer withdrawal permits will deprive the bass of thermal refuges in the vicinity of surrounding "blue-holes" of aquifer discharge that provide cooler water temperatures without which the bass "stop feeding and die."⁷⁴ Yet, besides the mention of these effects and some lesser effects on bass fishery, the Flint Plan does not quantify the loss in economic or ecologic terms.

In contrast to leaving the ecological harms in vague narrative terms, the Flint Plan appears to calculate with great care the monetary benefits associated with irrigation in the southern part

73. See, e.g., FLINT PLAN, *supra* note 50, at 71. The Flint Plan states:

On the main stem of Ichawaynochawy Creek where it flows into Subarea 4, mussel populations experienced large declines (a drop of between 50% and 100%, depending on species; Golladay, et al, 2004). There is probably little ground-water contribution to the stream at this location, but under normal circumstances there is substantial tributary flow above this point, as well as significant of [sic] surface-water withdrawals. Even under drought conditions, flows at this point would have been substantially higher [without irrigation], almost certainly precluding a large mussel die-off.

Id.

74. *Id.* at 73.

of the basin. Due to its transparency, however, the series of simplifying assumptions greatly limits the usefulness of the resultant monetized figure. For example, the model chosen was simplified to the point where there were only two variables: (1) the baseline number of irrigated acres and (2) the management strategy—a forty, thirty, or twenty percent reduction in irrigation and an increase of about fifteen percent represented by granting all of the backlogged permits.⁷⁵ The model chosen calculated everything as a function of the end price received for the crops sold. The model used multiplier effects to increase the benefits to reflect the non-farm aspects of the farming activity. Crop mix was made a constant, looking only at the three most common crops, peanuts, cotton, and corn, and yields with and without irrigation obtained from data collected from a single USDA research farm located in the region. The price data was for a single year. All of the crops enjoyed federal price stabilization that artificially raised their value but simultaneously implied that those crops were already grown in excess of desirable levels. In the end, EPD used the subsidies to increase the value of the water in irrigation (and applied a multiplier effect to that figure) to support the added irrigation that increased the yields of crops that were already being grown in excess. After all of that effort, the benefits were modest, at best. For the two sub-basins most likely to be the subject of increased irrigation, application of the model (increased by subsidies and multipliers) predicted a \$56 million difference between the most moderate reduction plan (twenty percent) and a plan granting all backlogged permit applications. This failed to consider the unquantified ecologic consequences⁷⁶ and the rather easy to predict tens of millions of dollars that the state will pay to buy forbearance of use from the over-issued permits to prevent ecologic disasters (if it acted in time).⁷⁷ In a \$9 billion plus Georgia farm economy, the benefits of the Flint Plan were less than peanuts.

Realistically, however, EPD cannot be expected to be a Platonic Guardian in these circumstances. It is a state agency that is responsible to its constituents. It is an executive branch agency with policies that are designed to promote the interests of the State of Georgia. The desire of the farmers to irrigate is within its narrow economic calculus and, spurred on by the subsidies, perfectly rational. Politically, EPD's great solicitude for permitting irrigation use is understandable. Downstream ecosystem services are not

75. *Id.* at 152-59.

76. *Id.* at 157.

77. The cost of payments at lower pre-Plan, pre-Moratorium permitting levels exceeded \$10 million.

within EPD's purview.

Nevertheless, it is hard to ignore the externalized downstream effects of EPD's actions. Irrigation is a highly consumptive use of water and the timing of the permitted irrigation withdrawals comes at the low ebb in the river's hydrograph⁷⁸ when the Flint provides forty percent of the summer discharge of the ACF Basin.⁷⁹ That confluence of factors makes it almost certain that the amount of irrigation allowed in the Flint Basin will have a significant ecosystem services impact further downstream. Even if all of the claimed benefits of the Flint Plan were real,⁸⁰ adding the value of downstream ecosystem services to the Georgia harms that were not quantified, a more objective decisionmaker would select a different course than that chosen by EPD.

III. STACKING THE DECK AGAINST THE ACF LOWER BASIN NON-DEVELOPMENTAL USES

In the ACF Basin, the stressors are mounting and the decisional posture of the Corps and the EPD are hauntingly similar to other cases in which mission and geopolitical polarity preclude a holistic view of the system. This is not surprising. The physical deck is stacked against lower users and the estuary. The traditional legal deck is stacked against the passive user. The federal regulatory deck is stacked against the broader forms of use. The political deck is stacked against power-sharing by insular state and local agencies. Those either at the bottom of the basin, or those who developed more slowly or more naturally than the other users of the resource, have fared badly.

A. The Physical Deck

If water law was simply a rule of capture, the bottom of the basin would get whatever the top allows it to receive. Whether through dams that store the water, diversions that turn the water into other basins, consumptive uses that deplete the water, or ef-

78. See data collected in Appendix A.

79. *Id.*

80. The data in the Flint Plan suggests that Georgia will pay a high ecological price in the interest of maximizing irrigation. This can be seen in the Flint Plan data that makes projections of shortfalls. These projections are measured in terms of (1) the percentage of years with flows below the targeted minimum and (2) frequency of flows below historic 7Q10. The "in-state" effect can be found by comparing those projections for the two most stressed Flint River sub-basins in Georgia (Ichawaynochaway Creek and Spring Creek) and those same projections for a gauging station at the very bottom of the Flint River basin (Bainbridge) just before the water flows into Florida. FLINT PLAN, *supra* note 50, at 228-33. Inadequate flow remains a problem at Bainbridge.

fluent discharges that foul the water, the upper state would be the master of what the lower state received. Add to that possibility the Western adage, "Water runs uphill to money," and it should be clear that the upper state's vision of what is in its developmental best interest could often leave little of value for the downstream state. Thus, as a starting point, the physical hand dealt to the bottom of the basin is pretty much whatever the top of the basin doles out as it uses water instrumentally to pursue its desires to improve the quality of life for its residents.

B. The Early 20th Century Legal Deck

The physical control of the upstream states is subject to legal restraint. Historically, in the United States there were two different, rather stark, periods of legal approach to water allocation disputes. One was an initial, more idealistic period as the nation entered the twentieth-century, and the other was a more utilitarian approach that was espoused by the Supreme Court in the last half of that century. The former offered a considerable solicitude for downstream interests, but under late twentieth-century legal doctrine the source and extent of legal recognition of downstream and less development-oriented interests was less than reassuring.

In a common pool resource like the ACF, as already described, an actor with the physical ability to simply appropriate the benefits of the resource can be expected to do so. To capture all of the benefits seems palpably unfair, but to capture some of the benefits seems to be perfectly just. Thus, in regard to a shared river basin, some capture of the benefit by those positioned to do so is an appropriate undertaking, *to a degree*. Justice Holmes put it best in the upstream-downstream contest over the Delaware River between New York on one side and New Jersey and the other downstream states on the other:

A river is more than an amenity, it is a treasure. It offers a necessity of life that 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.⁸¹

Therefore, *to a degree*, Georgia, the upstream state in the ACF basin, cannot be required to give up its power altogether in order that the river might come down undiminished. In light of the complex demands for basin water posed by millions of people in a technologically sophisticated world, it is simply not productive to discuss total restoration of natural flow. In sharing the resource equitably, the easiest kinds of comparisons to draw upon are comparisons of similar uses. The best examples of these arise in the western states under the prior appropriation doctrine because of the convergence of both the law and the manner in which water use historically proceeds. Water rights under prior appropriation have four elements: (1) diversion of (2) unappropriated water from (3) a natural stream and (4) application to a beneficial use. In the East, there may be times when laws and uses upstream and downstream are both similar, as when the principal functions of a waterway are municipal supply and navigation. More often the uses are not commensurate and similar. The water needs of river estuaries tend not to be the same as the needs upstream. Upstream states and their municipalities may value power generation, flat water recreation behind dams, navigation, municipal source water, and sewage disposal. Downstream states may not make the same uses because of tidal effects or a different topography. When the upstream and downstream uses diverge, comparison and equitable balancing are more difficult. However, what Justice Holmes makes abundantly clear is that the interests of the downstream state are on par with those of the upstream state. The difficulty of comparison and balancing the full spectrum of a state's interests, including flow regime and ecosystem services, does not make their virtual destruction a legally permissible choice.

Despite the idea of rivers as treasures and similar platitudes, flow protection for its own sake has not fared well in the history of water law. With the possible exception of the English doctrine of natural flow riparianism that held sway in England for perhaps 250 years, the world's history of water management and law in relation to water management supports the concept that water is not a mere natural amenity but is, instead, used by humankind as an instrumentality of human effort to improve human welfare.⁸²

81. *New Jersey v. New York*, 283 U.S. 336, 342 (1931).

82. Even this token adherence to flow for its own sake may be overstated. Professor Morton Horowitz' now famous article and book have explained that aspect of English law as being tolerable in that period because it supported all the uses that were being made of the water under the topographic, economic, and social conditions prevailing in England in that

American water law is distinctly instrumental in the same regard—inexorably, the law has been molded to fit the needs of society to use the water beneficially.⁸³ Ecosystem services accounting puts flow and non-developmental uses of water back into the balance as a substantial (non de minimis) state interest, a point that tends to be eclipsed by some of the Court's later interstate water decisions.

C. *The Late 20th Century Legal Deck*

The technological capacity to impound, divert, and befoul water courses has reached levels that were barely imaginable, and surely unattainable, at this nation's founding. That may help explain why water was largely unaddressed by the Constitution. The scant bits of legal governance given to water basins by the Constitution exist by extrusion from the interstate Commerce Clause⁸⁴, the Necessary and Proper Clause⁸⁵, the Property Clause⁸⁶, and the Tenth Amendment.⁸⁷ The principal method of adjusting state interests when states sue one another,⁸⁸ absent a negotiated agreement, is the doctrine of equitable apportionment supported by the grant of original jurisdiction to the United States Supreme Court.⁸⁹

The major question in equitable apportionments,⁹⁰ of course, is the one implicitly posed by Justice Holmes: to what extent are upstream states, having the physical power to control what happens

period. See Morton Horwitz, *The Transformation in the Concept of Property in American Law, 1780-1860*, 40 U. CHI. L. REV. 248 (1973); see also SAX, LEGAL CONTROL, *supra* note 36, at 39-47.

83. See Robert Abrams, *Charting the Course of Riparianism: An Instrumentalist Theory of Change*, 35 WAYNE L. REV. 1381 (1989).

84. U.S. CONST. art. 1, § 8, cl. 3.

85. U.S. CONST. art. 1 § 8, cl. 18.

86. U.S. CONST. art. 1 § 8, cl. 8.

87. U.S. CONST. amend. X.

88. There are, in fact, four methods of interstate water allocation: interstate compact, congressional apportionment, equitable apportionment by the Supreme Court, and private litigation regarding rights to waters of an interstate stream. See, e.g., Robert Abrams, *Interstate Water Allocation: A Contemporary Primer for Eastern States*, 25 U. ARK. LITTLE ROCK L. REV. 155 (2002). For the ACF Basin, the agreement needed for compact allocation is absent. Congressional apportionment is rare. SAX, LEGAL CONTROL, *supra* note 36, at 835-36. Recently, Congress has shown a willingness to use that device when there is interstate agreement where there are major federal interests (usually tribal concerns) that require funding or protection. *Id.* at 836-37. Private litigation does not address the full extent of upstream or downstream claims. *Id.* at 874-78.

89. U.S. CONST. art. III, § 2, cl. 2.

90. Professor Tarlock has compiled an excellent summary of equitable apportionment jurisprudence. See A. Dan Tarlock, *The Law of Equitable Apportionment Revisited, Updated, and Restated*, 56 U. COLO. L. REV. 381 (1985) [hereinafter A. Dan Tarlock, *Equitable Apportionment*].

downstream, constrained by legal doctrine in their chosen use and managerial imperatives of the water?⁹¹ This is a question not susceptible to a succinct answer. Originally, the United States Supreme Court gave an answer to that question that held great promise for downstream or later developing states unlike the conventional modern doctrine announced in *Colorado v. New Mexico*.⁹²

The first equitable apportionment case was *Kansas v. Colorado*.⁹³ It stressed the sovereign equality of the states, helping to build the tradition upon which Justice Holmes relied in *New Jersey v. New York*.⁹⁴ Justice Brewer speaking for the Court in *Kansas v. Colorado* 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. It can impose its own legislation on no one of the others, and is bound to yield its own views to none. . . . We must consider the effect of what has been done upon the conditions in the respective states, and so adjust the dispute upon the basis of equality of rights as to secure as far as possible to Colorado the benefits of irrigation without depriving Kansas of the like beneficial effects of a flowing stream.⁹⁵

While intervening decisions, in the main, kept faith with the “cardinal rule of equality of right,” the Court’s apparent desire to give more predictability to equitable apportionment led to a pair of opinions apportioning the Vermejo River between Colorado and New Mexico that, in effect, defined a series of elements of a cause of action and announced burdens and standards of proof that must be met by states seeking to obtain a decree from the court.⁹⁶ The most salient facts for present purposes are that New Mexico claimed that her water users had already put the entire flow of the river to beneficial use. Colorado, the upstream state, had approved plans to allow a headwater diversion of Vermejo River water into another basin in Colorado, the Purgatoire, that was grossly overappropriated and in need of additional supplies.⁹⁷ The

91. See *New Jersey v. New York*, 283 U.S. 336, 342 (1931).

92. 459 U.S. 176 (1982), *aff’d*, 467 U.S. 310 (1984) (discussed *infra* note 97-98 and accompanying text).

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

94. 283 U.S. 336 (1931).

95. *Kansas*, 206 U.S. at 97, 100.

96. See *Colorado v. New Mexico*, 459 U.S. 176 (1982), *aff’d*, 467 U.S. 310 (1984).

97. For additional facts and a far more complete description of the case and the hold-

most salient part of the holding, for present purposes, is that Colorado got no water whatsoever.

For less developed regions, this result may be an ominous portent. Looking on the gloomy side of the case, I previously concluded that states like Florida in the ACF who use water more passively for its in situ benefits faced a changed and inhospitable doctrine:

Despite the citation to proof standards required in previous cases, the Court's distillation of prior cases, which had been far more open-ended in their approach, into a set of discrete, sequential inquiries each having an allocated burden of proof was novel. That specification transformed what previously had been a search for fairness guided by broad principles of the equality of sovereign states into a less robust inquiry. It changed the case from one of seeking to do equity under all of the circumstances and pursuing the great equitable maxim that "equality is equity" to something more akin to an action at law where an unfair outcome is tolerated as the price of having predictable legal outcomes that assist citizens in planning their activities and investments.⁹⁸

While I am not ready to recant my dim view of Vermejo River decisions, I am hopeful that their scope of application can be limited to cases in which the states come to the Court making parallel claims as to type of use and local law governing the allocation of water. In the Vermejo case, both Colorado and New Mexico were prior appropriation jurisdictions where the desire was to be allocated water that, in turn, would be reallocated to support traditional western states beneficial uses. It is not the same as in the ACF, where Georgia, that claims to be the state making the economic use of the water, is actually the newcomer that is interfering with established economic practices in the Basin. For example, Georgia's increased irrigation in the Flint Basin is interfering with established oystering in the Apalachicola Bay where the flow is relied on to provide ecosystem services that support the harvesting of oysters. Under the Vermejo River cases, that may be enough to win a decree. Additionally, as argued more fully below, there are reasons to see Florida's claims of harm to its interest in ACF re-

ings see A. Dan Tarlock, *Equitable Apportionment*, *supra* note 91, at 404-09.

98. Robert Abrams, *Interstate Water Allocation: A Contemporary Primer For Eastern States*, 25 U. ARK. LITTLE ROCK L. REV. 155, 166 (2002).

sourceplex as sharing common ground not only with the older United States Supreme Court equitable apportionment cases, but also with the central precept of the Court's substantive interstate nuisance decisions.⁹⁹

As a possible counterpoint to the Vermejo River decisions, there is one unusual equitable apportionment case in which the Court apportioned the fish resource that was supported by an interstate river, an action that can easily be viewed as apportioning a specific ecosystem service.¹⁰⁰ In that case the Court ruled that it could apportion the right to salmon runs in the Columbia-Snake system between the competing states. The Court stated, "[a] dispute over the water flowing through the Columbia-Snake River system would be resolved by the equitable apportionment doctrine; we see no reason to accord different treatment to a controversy over a similar natural resource of that system."¹⁰¹ Professor Ruhl, after noting that language continues:

Like fish flowing through the river system, ecosystem services do as well, delivering true economic value in many different ways and locations. Injury to those economically valuable resources ought, therefore, to count in the "substantial injury" analysis.

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

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

99. See discussion *infra* notes 128-37 and accompanying text.

100. *Idaho ex rel Evans v. Oregon*, 462 U.S. 1017 (1983).

101. *Id.* at 1024.

were, for all practical purposes, what made the water valuable to the state.

Ecosystem services, like the salmon, are economically valuable resources that flow within the water system of the ACF and any other river. Moreover, with each year we understand more about the nature and value of ecosystem services-to leave them out of the interstate water apportionment analysis would simply be to ignore the ecological and economic realities of river systems such as the ACF.¹⁰²

Between a narrowed reading of the Vermejo River decisions and the possibilities suggested by the salmon apportionment, it is possible to hope that the modern equitable apportionment card in the deck, though not a certain protector of ecosystem services, is not a certain ace in Georgia's hand in the ACF dispute.

D. The Federal Regulatory Deck

The federal government does not have a national water policy.¹⁰³ Congress left establishment of water policy to the traditional police power authority of the states. Congress seldom intervenes without state agreement into water allocation decisions.¹⁰⁴ What Congress has done, however, is to use its interstate commerce and other express powers in ways that affect water allocation as evidenced by the way in which the national government has gone about achieving national objectives unrelated to water allocation.

A familiar example, in play in the ACF Basin, is the power of Congress to authorize the Corps to build dams on navigable rivers and operate those facilities for navigation and flood control purposes. The federal authority that traces to the interstate commerce power is unquestioned. The Corps, in turn, operates the dams to achieve those purposes with attendant impacts on the basin flow regime. As seen in the ACF, this is de facto water management. If the use that a state favors is the use that the Corps is managing to achieve, the state is in luck. If the use that the state

102. J. B. Ruhl, *Equitable Apportionment of Ecosystem Services: New Water Law For A New Water Age*, 19 J. LAND USE & ENVTL. L. 47, 53-54 (2003).

103. Janet C. Neuman, *Federal Water Policy: An Idea Whose Time Will (Finally) Come*, 20 VA. ENVTL. L.J. 107 (2001).

104. See, e.g., SAX, LEGAL CONTROL, *supra* note 36, at 802-08. The lone counter-example is the Colorado River, in which the Court held in *Arizona v. California*, 373 U.S. 546 (1963), that Congress had apportioned the river in the Boulder Canyon Project Act, which was deemed to allocate the water on a basis that had been resisted by Arizona.

is seeking to achieve is at odds with the Corps' operating plan, the state is out of luck. The fate of the upper basin states on the Missouri is the most recent and most visible case in point. There, efforts to force the Corps to revise the Master Manual to support the burgeoning recreational tourism industry has been trumped by the Corps, whose actions within the jurisdiction enjoy the mantle of federal supremacy.¹⁰⁵ There is no reason to expect the Corps to take actions that materially advance Florida's desire to maintain and improve ecosystem services in the ACF, unless it happens as a felicitous by-product of the Corps pursuing its narrower statutory missions.¹⁰⁶

E. The Political Deck

The political deck is stacked against power-sharing. Recalling the Flint Plan, what possible motivation can be conjured up for the EPD to do anything other than maximize benefits to Georgia? So long as the only significant costs of greater upstream consumption are felt exclusively out-of-state and farther downstream, there is no counterweight to serving constituent self-interest. Floridians do not vote for Governor Perdue of Georgia, or the legislature that passed the Georgia Water Code, or the judges who review EPD's actions. If anything, the we-they (Georgia-Florida) distribution of benefits and costs makes the result a political no-brainer for Georgia politicians, bureaucrats, and popularly elected local judges. The opposite course of action is politically risky, if not suicidal.¹⁰⁷

105. See *In re* Operation of the Mo. River Sys. Litig., 421 F.3d 618 (8th Cir. 2005). Environmental groups won an early skirmish on the issue, see *Am. Rivers v. U.S. Army Corps of Eng'rs*, 271 F. Supp. 2d 230 (D.D.C. 2003).

106. The Corps and other federal agencies such as the Federal Energy Regulatory Commission (FERC) are, at times, more like pawns whose regulatory power is being used as a small handle by persons seeking to block or obtain a certain result. One high profile example is the decades long efforts of North Carolina to defeat an eighty-two mgd diversion from the Roanoke River at Lake Gaston, just above the North Carolina border, that was going to be shipped via pipeline to Virginia Beach, Virginia. In that instance, North Carolina tried to prevent needed federal agency approvals of rights of way and similar agency decisions having almost nothing to do with water allocation as a means of defeating the project. See, e.g., SAX, LEGAL CONTROL, *supra* note 36, at 87-97.

107. That word has been used in relation to interstate water controversies by none less than Justice Holmes to stand for nearly the opposite proposition than that being suggested here. *Bean v. Morris*, 221 U.S. 485 (1911), involved a private interstate water use dispute between upstream Montana junior appropriators whose rights were created pursuant to Montana law and a downstream senior appropriator whose right was created under Wyoming law. The case had been litigated originally in Montana federal court because the Wyoming senior could not get Wyoming personal jurisdiction over defendants. This was prior to the overturning of *Pennoyer v. Neff*, 95 U.S. 714 (1877) and jurisdiction was still unavailable. That plaintiff eschewed going to Montana state court, likely fearing local bias in favor of the home state Montana junior appropriators. Earlier litigation over the same stream stretch seems to demonstrate that the Montana juniors were aware of the Wyoming

A recent water story from Idaho highlights the power of water as a political hot button for voters.¹⁰⁸ As part of the ongoing Snake River Basin General Adjudication, the Idaho Supreme Court ruled on claims asserted by the United States seeking federal reserved water rights. Recognizing such rights, in effect, would reduce the amount of water available for appropriation by Idaho's water users. One such claim was for a reservation of all unappropriated water of Snake River tributaries flowing into three federal wilderness areas in Idaho. Initially, in a three-to-two decision, the Idaho Supreme Court upheld the lower court's ruling awarding such rights as necessary to fulfill the wilderness purposes.¹⁰⁹ Public uproar at the decision led the court to grant a rehearing. While the rehearing was underway, the author of the suspended majority opinion, Justice Silak, was soundly defeated in her bid for reelection by an opponent who had made the granting of reserved rights an issue. Catching the political drift, on reconsideration, one of the other justices, who had been in the original majority and who was about to face reelection, switched sides so that a new majority position emerged and denied the federal claim.¹¹⁰ Quite unsurprisingly, the politically wary Idaho Supreme Court also found no federal reserved water rights for the benefit of the Deer Flats and Minidoka Wildlife Refuges.¹¹¹ In that later case the reserved rights would have guaranteed minimum instream flows necessary to maintain the separation of islands that provided migratory bird habitat safe from terrestrial predators.

The moral to be drawn from the Idaho story for interstate basins is little different than in its original context. It really does not matter that the "outsider" in the Idaho case was the federal government. The political pressure to serve the interests of in-state water users, whose rights are dependent on their state having as large an entitlement as possible, is extraordinary. Out-of-state water users in competition with in-state users should not expect

seniors and built their elaborate diversion works anyway. In a rather odd blend of pragmatism and idealism, Justice Holmes ruled that Montana would give comity and recognize the right of a Wyoming senior's right to take the water. He found to do otherwise would be "suicidal" because the upstream and downstream positions of the two states were reversed on some of the region's other interstate streams. *See* *Bean v. Morris*, 221 U.S. 485 (1911).

108. *See generally*, Michael C. Blumm, *Reversing the Winters Doctrine?: Denying Reserved Water Rights for Idaho Wilderness and its Implications*, 73 U. COLO. L. REV. 173 (2002).

109. *In re* SRBA, Case No. 39576--Wilderness Reserved Claims, 1999 WL 778325 (Idaho, Oct. 1, 1999) (opinion withdrawn).

110. *Potlach Corp. v. United States*, 12 P.3d 1260 (Idaho 2000). Justice Silak was still a lame duck member of the court for the rehearing opinion—she dissented from the reversal of position. Newly elevated Chief Justice Trout changed sides to vote with the new majority.

111. *United States v. Idaho*, 23 P.3d 117 (Idaho 2001).

much from politically accountable decisionmakers across the border.

IV. CREATING A "LAW OF THE RIVER" FOR THE ACF¹¹² THAT VALUES ECOSYSTEM SERVICES

The phrase, "The Law of the River," as a water law term, is used to describe the unique and intricately complex mix of federal and state law and administrative actions that govern the Colorado River. More and more, however, other rivers and basins are beginning to develop their own complex of governance mechanisms. Plainly that is the case with the Columbia, the Delaware, the Rio Grande, the Platte, the Missouri, the Sacramento-San Joaquin, and the Everglades. While these are rivers and basins of high visibility, a pattern is clearly in place. Despite the variability and site-specific nature of each basin's "law," each basin has a complex matrix of governmental actions taken by various authorities that create a de facto form of conflict resolution and basin governance. Each case is unique as to what actors and authorities are most prominent, but competing demands for the use of water are forcing the creation of mechanisms that allocate the use of basin water resources.

In virtually any of those basins, it might be appealing to borrow the Delaware model as an example of a strong basin commission that manages the entire resource with a basinwide perspective. However, this has yet to happen in any other basin, and it is not likely to happen in the ACF. The unusual power held and exercised by the DRBC grew out of a major crisis—a simultaneous credible threat to the water supply of both New York City and Philadelphia—that created an extraordinary political exigency and allowed the political leaders to grant managerial power to the compact agency. Those conditions will probably never be replicated in the ACF. Likewise, traditional allocation law, established by the late twentieth century equitable apportionment jurisprudence, if not altered, entrenches the current pattern of ACF water use and its attendant effects. Thus, those unhappy with the direction in which management of the ACF is heading, and there should

112. Professor Ruhl has suggested that the ACF has no law of the river. See Ruhl, *supra* note 103, at 49. Professor Ruhl equates the concept of having a "Law of the River" with a long and articulated legal history that combines to control the river. See *id.* at 49-50. The idea being offered here has a much lower threshold, a discernible set of institutional controls, possibly including formal adjudications, from which a mostly consistent pattern of water allocation and use can be predicted. In the years since 2003, under this standard, the ACF has had a "Law of the River." Putting aside the difference in use of the terms, Professor Ruhl and I fully agree that the status quo that is in place needs to change. *Id.* at 56-57.

be many, need to find ways in which to influence or re-channel the course that the Corps and EPD are in the process of establishing as the law of the basin. The status quo holds the prospect of a gradual ecological impoverishment of the Apalachicola Bay estuary, and sets a precedent that appears capable of repetition in any basin where the estuary is not a major population center or regional economic engine.

One of the main objectives of this symposium is to win recognition for, and a place in, resource decision making for the non-traditional concept of ecosystem services. In the ACF basin, proper accounting of ecosystem services would raise doubts about the large scale benefit-cost premises upon which the EPD's Flint Plan relies for justification. Even so, a better accounting of ecosystem services does not give the Corps, the EPD, or Georgia elected officials any greater political reason to value out-of-mission or out-of-state benefits. It is still necessary to find a mechanism that places ecosystem services into the mix in a way that can affect outcomes enough to force stakeholders benefiting from the current "law of the ACF" to be willing to negotiate and compromise.

A. Common Law Nuisance on the Larger Interstate Stage

Professor Ruhl has suggested that the tort of nuisance might be employed to advantage in cases where damage to ecosystem services can be quantified and made part of the nuisance inquiry.¹¹³ He initially explains the view that nuisance can be helpful, but that nuisance does not appear to be capable of protecting ecosystem services sufficiently.¹¹⁴ He states: "[T]here is wide agreement that private nuisance actions alone are grossly inadequate for resolving the more typical pollution problems faced by modern industrialized societies."¹¹⁵ Replace "pollution" in that sentence with "ecosystem management" and one has the lack of capacity argument in a nutshell.¹¹⁶

Later in the article, however, he sounds more hopeful:

It is my belief that the common law is equipped to

113. See J. B. Ruhl, *Ecosystem Services and the Common Law of "The Fragile Land System,"* 20 NAT. RESOURCES & ENV'T. 3, 4-5 (Fall 2005). [hereinafter Ruhl, *Fragile Land System*].

114. *Id.*; See also John Sprankling, *The Anti-Wilderness Bias in American Property Law*, 63 U. CHI. L. REV. 519 (1996) (arguing that the common law has developed with an ingrained anti-environmental bias).

115. Ruhl, *Fragile Land System supra* note 114, at 5 (citing ROBERT PERCIVAL, ET AL., ENVIRONMENTAL REGULATION 72 (4th ed. 2003) (citation omitted)).

116. *Id.*

answer that question and others like it. The fact that it has not until now attempted to do so does not mean that it cannot, or will not have the opportunity, or simply is against all notion of it. The only missing ingredient until now has been the storehouse of knowledge ecologists and economists are building about the value of ecosystem services. This is precisely the kind of new knowledge Justice Scalia confirmed in [*Lucas*] [that] can transform the common law and “make what was previously permissible no longer so.”¹¹⁷

Against this backdrop, it is worth re-examining the doctrine of nuisance, particularly how that doctrine fits into the interstate ecosystem services setting. First, consider the basics. Most fundamentally, the gravamen of the nuisance cause of action, “unreasonable interference with the quiet enjoyment of land,” scrutinizes the degree of interference suffered by the victim.¹¹⁸ Importantly, for assessing liability of the defendant, the word “unreasonable” modifies the word “interference.” Nuisance, therefore, initially focuses attention solely on the harm suffered, not the qualitative nature of the defendant’s conduct.¹¹⁹ Most typically, nuisances are intentional torts in which the defendant is held responsible for the natural consequences of an intended act.¹²⁰ Here, too, there is very little concern with the qualitative nature of defendant’s conduct or with the defendant’s state of mind. The intent requirement is that the defendant intended to act in a particular way and that the harm was foreseeable, not that the defendant intended harm to the plaintiff.¹²¹ The law then tracks reality and the knowledge of the community to include liability for the natural and probable consequences of an intended act. As the knowledge of cause and effect improves, which has been an inexorable process, the scope of liability in nuisance expands. As knowledge of how ecosystems provide ecosystem services improves, persons whose actions have as a natural and probable consequence the significant impairment

117. *Id.* at 69, *quoted in* *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1031 (1992); *see also* Michael Blumm & Lucas Ritchie, *Lucas’s Unlikely Legacy: The Rise of Background Principles as Categorical Takings Defenses*, 29 HARV. ENVTL. L. REV. 321 (2005).

118. W. PAGE KEETON, ET AL., PROSSER AND KEETON ON THE LAW OF TORTS § 86 at 616 (5th ed. 1984).

119. ZYGMUNT J. B. PLATER, ET AL., ENVIRONMENTAL LAW AND POLICY: NATURE, LAW, & SOCIETY 106-07 (3rd. ed. 2004).

120. BLACK’S LAW DICTIONARY 470-71 (2d pocket ed. 1996).

121. *Id.*

(“unreasonable interference”) of ecosystem services will be liable under the nuisance doctrine.

Already, the physical mechanisms by which the ecosystem is harmed and the value of ecosystem services are far better established than they were a generation (or two) ago at the beginning of the Earth Day era.¹²² Those mechanisms and values are far better understood than they were before the Symposium of Ecosystem Services held at Stanford University in 2001. For these reasons, nuisance holds promise for protecting ecosystem services, but to be effective, nuisance law must be clear of apparent limitations traceable to two additional modern era jurisprudential developments. In the common law arena, the famous 1970 decision, *Boomer v. Atlantic Cement Company*,¹²³ had a profound effect on tort law remedial doctrine in the environmental context, making the balancing of the equities more prominent and effectively eliminating private standing to insert broad public health considerations into the private nuisance lawsuit. In the public law arena, massive federal legislative efforts, including the enactment of the Clean Water Act,¹²⁴ resulted in preemption of interstate common law nuisance remedies for pollution introduced by point source dischargers¹²⁵ and choice of law limitations on private nuisance suits seeking remedies for interstate water pollution.¹²⁶

B. *Balancing the Equities*

Boomer was a case of conceded liability in which the only issue was remedy.¹²⁷ In a suit by a few neighbors, a major new cement plant was allowed to continue its polluting activities without change. The court found the plant was a nuisance, a ruling that was not contested by the defendant on appeal. In the remedial phase of the case, when the court balanced the equities, the interference with quiet enjoyment suffered by plaintiffs was vastly outweighed by the loss to defendants of closing a new state-of-the-art \$45 million cement plant that provided hundreds of local jobs and a major infusion of local tax revenue.¹²⁸ Because it was a state of

122. Earth Day was first celebrated on April 22, 1970. See e.g., Gaylord Nelson, *How the First Earth Day Came About*, ENVIROLINK, <http://earthday.envirolink.org/history.html>.

123. 257 N.E.2d 870 (N.Y. 1970).

124. Federal Water Pollution Control Act (Clean Water Act), 33 U.S.C. §§ 1251-1387 (2000).

125. *City of Milwaukee v. Illinois*, 451 U.S. 304 (1981); see also, Robert Percival, *The Clean Water Act and the Demise of the Federal Common Law of Interstate Nuisance*, 55 ALA. L. REV. 717, 767-68 (2004).

126. *Int'l. Paper Co. v. Ouellette*, 479 U.S. 481 (1987).

127. *Boomer*, 257 N.E.2d at 871.

128. For a less generous view of the *Boomer* case, see ZYGMUNT PLATER, ET AL., *supra*

the art plant, and because the majority felt Atlantic Cement was incapable of innovating its way out of the problem alone,¹²⁹ the majority felt it was faced with an “all or nothing” choice: the only effective way to end the continuing nuisance was to totally close the plant, a step the majority felt was inequitable. The remedy allowed in *Boomer*, permanent damages, was imperfect in salient regards,¹³⁰ but application of the balancing of the equities doctrine was, and remains, a well-established part of the remedial calculus when injunctive relief is sought. Applying that doctrine in the ecosystem services context can be profoundly unsatisfying. Economically important nuisances that substantially impair (unreasonably interfere with) ecosystem services will win the balance of the equities test, and leave the harm caused to the ecosystem services unabated.

That is far too bleak a view, however. First, it assumes that the balance of equities will favor the ecosystem impairing activity and that the degree of needed abatement is an “all or nothing” proposition. Not all balances will be as one-sided as *Boomer* appears to be. One thing that the ecosystem services concept brings to the table is an enhanced recognition of the harms caused and the values affected when those services are disrupted. Seasonal dewatering of a stream segment is no longer thought of as a mere interference with the amenity values of a few riparians or an interference with the operations of a few canoe liveries and bait shops. The mussel die-off costs a great deal in lost filtration and water quality. The loss of flow not only kills fish trapped without water, but it also impairs spawning and depresses the fish populations into the future. Further, the flow reductions that occur at what already is the low ebb in the hydrograph weaken the flow through the estuary, allowing increased salinity concentrations to come further upstream and interfere with oyster habitat and reproduction.¹³¹ Because scientists now understand the mechanism by

note 120, at 111-14, 173-74.

129. In fact, electrostatic precipitator technology was available but not in use at the plant. The plaintiffs in litigating the case apparently were unaware of that fact. In any event, the record in the case found the plant was “state of the art” and that there was not an existing technological improvement that would reduce the emissions. *Boomer*, 257 N.E.2d at 873. For that reason, the “state of the art” assertion had especial importance because it made the case appear to the majority to be one in which its only effective injunctive option was to close the plant. *Id.*

130. The refusal of all relief other than permanent damages has the same effect as private condemnation of an easement for disposal of dust and vibration for a non-public purpose without statutory authorization delegating the power of eminent domain to a private entity. That aspect of the case might be viewed more critically after the public dismay with the result in *Kelo v. City of New London*, 545 U.S. 469 (2005).

131. WASHINGTON STATE AQUATIC HABITAT GUIDELINES PROGRAM, INTEGRATED STREAMBANK PROTECTION GUIDELINES, APPENDIX F, FLUVIAL GEOMORPHOLOGY (2002),

which those harms accrue, and because economists can compute the values those ecosystem services provide, two aspects of the nuisance calculus are affected. Defendants intend what is foreseeable, and when the remedy stage comes, there is more to tip the scale towards an injunction that protects the flows. The ramifications of this sort of invocation of ecosystem services can be far-reaching. Balance, for example, the value of water stored behind dams in spring at the expense of the usual scouring flows. Assume that those waters have a calculable value for flat water recreation and hydropower generation. A better understanding of ecosystem service mechanisms identifies the fact that dam operators now know impounding spring high flows, particularly over several seasons, and this reduces channel scouring and sediment transport.¹³² Correspondingly, the failure of channel maintenance exacerbates flooding during high rainfall events, which, in a built-up region, causes vast and readily calculated damages that can be taken into account in the balance of equities.¹³³

It may be a while in coming—or it may not—but a better understanding of ecosystem services will lead to more weighty interests being placed in the balance of equities on the side of protecting natural systems via nuisance-based injunctions. In the Flint River Basin, for example, the preservation of subsidy-induced cropping decisions, even though it has some local economic benefit, does not clearly outweigh the destruction of the oystering economy in Apalachicola Bay or the lost water quality benefits of the filtration services provided by the mussels. Moreover, because the remedy is being sought in equity, it need not be a black and white decision. A decree could have triggers linked to flow regime after which the balance shifts from allowing irrigation to ensuring flows and back again as the circumstances allow. The experience in the Delaware Basin teaches that this is feasible and growing easier as increasing computing power, better data sets, and better monitoring put more

available at http://wdfw.wa.gov/hab/ahg/ispg_app_f_fluvialgeo.pdf#search='fluvial%20geomorphology.

132. The technical name for this branch of science is fluvial geomorphology. *Id.*

133. Lest anyone doubt the significance of the cost of increased flood damages, consider first the trend in the amount of flood damage. The National Weather Service for the most recent three year period (2001-03 in the public data set) estimated the annual average flood damage at \$3 billion. The long term trend is that damages (in 1995 constant dollars) from floods are rising and rising. See Flood Damage in the United States: National Data Set, <http://www.flooddamagedata.org/national.html> (last visited Aug. 7, 2007). Consider also the way the insurance industry, which is very interested in minimizing their responsibility to reimburse such losses, handles the matter with flood zone coverage exclusions that leave property owners to seek their solace in the largess of the federally subsidized flood insurance program. See generally Oliver A. Houck, *Rising Water: The National Flood Insurance Program and Louisiana*, 60 TUL. L. REV. 61, 66 (1985).

accurate modeling in reach.

Second, even if the balance of equities favors continuation of the ecosystem impairing activity, if the impact on the ecosystem services is substantial,¹³⁴ a damage award will be made. Obviously, damages alone do not stop the impairment of ecosystem services, but they are far from worthless. Damages provide a deterrent to similar conduct by others. Damages increase the attractiveness of investing in ameliorative actions that would reduce the damage. Damages provide a fund that can support remedial activities including, but not limited to, habitat improvement, stocking, mussel reintroduction, and land retirement. Thus, recognizing the routine availability of at least a damage remedy, via nuisance actions for harms to ecosystem services, internalizes those costs, prompts an interest in avoiding the cost that was not present before, and funds restoration.¹³⁵ The deterrent value of the damage remedy in ecosystem services cases increases as a function of the certainty of liability and value of the harm to ecosystem services. The exponential growth in contemporary understanding of ecosystem services increases both the certainty of liability in nuisance, the values at stake (by either shifting the balance of the equities or increasing the deterrent value of damages), and the lengths to which project proponents will go to avoid impairment of ecosystem services in the first instance.¹³⁶

C. States as Interstate Nuisance Complainants

A further consideration in relation to the balancing of equities doctrine is the distinction between private nuisance actions and public nuisance actions. The latter have an intuitively greater claim on the court's conscience because, usually, they are brought in the name of the government by the public servant responsible for protecting the public health and safety.¹³⁷ Even more dramatically, case law displays a remarkable contrast between private

134. This statement is meant to embrace the maxim, "de minimis non curat lex." The law does not concern itself with trifles.

135. There are salient limitations to the effectiveness of *private* nuisance in a setting such as the Flint River where (1) the harm to ecosystem services is being caused by the collective effect of many individual actions and where (2) the suitors claiming damages to their lands due to impaired ecosystem services each suffer hard to quantify losses.

136. The hardest issues here are likely to be issues of aggregation-aggregate damage and aggregate causation. Those issues recede in the interstate public nuisance context of most concern in this article. Defendant class actions may be a method for considering collective causation if the activity involved is not subject to control by a unitary regulator.

137. Recall here that in *Boomer* the private plaintiffs were not allowed to raise public interests in their part of the balance of equities, whereas the contributions of defendant's cement plant to the local economy and tax base were prominently mentioned. *Boomer*, 257 N.E.2d at 873-75. The public official is allowed to put more things onto the scale.

nuisance actions and interstate public nuisances pursued by the injured state on a *parens patriae* theory. Interstate public nuisance actions brought by an injured state are, rather plainly, highly apposite precedents for cases in which the harm claimed is impairment of ecosystem services.¹³⁸

The classic example of the distinction between private nuisance and interstate public nuisance is seen in the early twentieth century copper smelting cases along the Tennessee-Georgia border.¹³⁹ The same sulfur-laden¹⁴⁰ and acid-laden fumes that destroyed crops and timber and covered plaintiffs' lands with sickening and noxious odors were at issue in two roughly contemporaneous cases. The first was an intrastate private nuisance action by a small number of Tennessee neighbors of the smelters.¹⁴¹ The second, and far more famous, was brought by the State of Georgia for injuries to lands lying within its borders. In the intrastate private nuisance case, *Madison v. Ducktown Sulphur, Copper & Iron, Company*,¹⁴² "[T]he defendants admitted that they were liable in actions at law in damages for whatever injuries had been inflicted, but denied the right of the complainants to an injunction."¹⁴³ The court, however, pointed out findings below that, despite expenditures in excess of \$200,000 by one of the defendants, defendants could not:

[G]et rid of the smoke and noxious vapors. . . . [and therefore] if the injunctive relief sought be granted, the defendants will be compelled to stop operations, and their property will become practically worthless, the immense business conducted by them will cease,

138. A. Dan Tarlock, *Equitable Apportionment*, *supra* note 91, at 388-92 suggests there are important reasons emanating from Eleventh Amendment state immunity that make this distinction very important and restrict the availability of some forms of relief to true *parens patriae* suits.

139. There is at least a small degree of irony in the ACF situation should Georgia find itself aligned with the defendants in an interstate nuisance case when it was the principal plaintiff in the most famous precedent favoring states as plaintiffs. The symmetry of the doctrine, that a state can be either a plaintiff or a defendant, is noted as part of its inherent fairness and appropriateness in the context of inter-sovereign disputes.

140. As a matter of arcane trivia that becomes readily accessible with the advent of the world wide web, the "correct" spelling of the chemical substance was changed in the United States from "sulphur" to "sulfur" in chemical reference works in the early 19th century. See World Wide Words: Sulphur <http://www.worldwidewords.org/topicalwords/tw-sull1.htm> (last visited Aug. 7, 2007). In England, that change was resisted for more than a century thereafter, until 1990, when the IUPAC adopted the spelling "sulfur" followed by the Royal Society of Chemistry Nomenclature Committee in 1992. See Sulfur – Wikipedia, the free encyclopedia, <http://en.wikipedia.org/wiki/Sulfur#Spelling> (last visited Aug. 7, 2007).

141. *Ducktown Sulphur, Copper & Iron Co. v. Barnes*, 60 S.W. 593 (Tenn. 1900).

142. 83 S.W. 658 (Tenn. 1904).

143. *Id.* at 661.

and they will be compelled to withdraw from the state. It is a necessary deduction from the foregoing that a great and increasing industry in the state will be destroyed, and all the valuable copper properties of the state become worthless."¹⁴⁴

After reciting a variety of facts detailing the number of jobs, the gross payrolls, and the local tax revenues associated with the copper smelters, the Tennessee Supreme Court addressed the true issue before it:¹⁴⁵ whether or not to grant an injunction. The court used the balancing of the equities doctrine that provides for equitable discretion to do what is more just under the circumstances. In this case, equitable balance meant to deny an injunction and preserve the millions of dollars invested along with the jobs of whole counties full of inhabitants.¹⁴⁶ Damages would have to suffice as the remedy for the considerable inconvenience and lost property value of the plaintiffs.¹⁴⁷

At roughly the same time, the State of Georgia, which was proximate to the same two smelting firms, Ducktown Sulphur and Tennessee Copper Company, filed an original bill in equity in the Supreme Court of the United States to enjoin those Tennessee defendants from discharging their noxious gasses over a five county area in Georgia.¹⁴⁸ The bill charged destruction of crops, orchards, and forests, as well as other damage, and further alleged that a vain request for relief had been made to the State of Tennessee.¹⁴⁹ A former State Supreme Court Justice, Oliver Wendell Holmes delivered the opinion of the Court.¹⁵⁰ The opinion's premises and approach could hardly have been more different:

The case has been argued largely as if it were one between two private parties; but it is not. The very elements that would be relied upon in a suit between fellow-citizens as a ground for equitable relief are wanting here. The state owns very little of the territory alleged to be affected, and the damage to it capable of estimate in money, possibly, at least, is small. This is a suit by a state for an injury to it in

144. *Id.* at 660.

145. The court had eliminated one claimant's equitable rights by application of the doctrine of laches. *Id.* at 662-63.

146. *Id.* at 667.

147. *Id.*

148. *See Georgia v. Tennessee Copper Co.*, 206 U.S. 230, 236 (1907).

149. *Id.*

150. *Id.*

its capacity of quasi-sovereign. In that capacity the state has an interest independent of and behind the titles of its citizens, in all the earth and air within its domain. It has the last word as to whether its mountains shall be stripped of their forests and its inhabitants shall breathe pure air. It might have to pay individuals before it could utter that word, but with it remains the final power. The alleged damage to the state as a private owner is merely a make-weight, and we may lay on one side the dispute as to whether the destruction of forests has led to the gulying of its roads.¹⁵¹

From that starting point, Justice Holmes reiterated the understanding of interstate nuisance actions he had announced for the Court in *Missouri v. Illinois*.¹⁵² The passage bears unusual importance to interstate resource allocation disputes:

The caution with which demands of this sort, on the part of a state, for relief from injuries analogous to torts, must be examined, is dwelt upon in *Missouri v. Illinois*. But it is plain that some such demands must be recognized, if the grounds alleged are proved. When the states by their union made the forcible abatement of outside nuisances impossible to each, they did not thereby agree to submit to whatever might be done. They did not renounce the possibility of making reasonable demands on the ground of their still remaining quasi-sovereign interests; and the alternative to force is a suit in this court.

Some peculiarities necessarily mark a suit of this kind. If the state has a case at all, it is somewhat more certainly entitled to specific relief than a private party might be. It is not lightly to be required to give up quasi-sovereign rights for pay; and, apart from the difficulty of valuing such rights in money, if that be its choice it may insist that an infraction of them shall be stopped. The states, by entering the Union, did not sink to the position of private owners, subject to one system of private law. This court has

151. *Id.* at 237.

152. 180 U.S. 208 (1901) (recognizing cause of action); *bill dismissed without prejudice*, 200 U.S. 496 (1906) (denying relief principally due to lack of proven injury).

not quite the same freedom to balance the harm that will be done by an injunction against that of which the plaintiff complains, that it would have in deciding between two subjects of a single political power. Without excluding the considerations that equity always takes into account, we cannot give the weight that was given them in argument to a comparison between the damage threatened to the plaintiff and the calamity of a possible stop to the defendants' business, the question of health, the character of the forests as a first or second growth, the commercial possibility or impossibility of reducing the fumes to sulphuric acid, the special adaptation of the business to the place.

It is a fair and reasonable demand on the part of a sovereign that the air over its territory should not be polluted on a great scale by sulphurous acid gas, that the forests on its mountains, be they better or worse, and whatever domestic destruction they have suffered, should not be further destroyed or threatened by the act of persons beyond its control, that the crops and orchards on its hills should not be endangered from the same source. If any such demand is to be enforced this must be notwithstanding the hesitation that we might feel if the suit were between private parties, and the doubt whether, for the injuries which they might be suffering to their property, they should not be left to an action at law.¹⁵³

The Court approached the remedial phase by inviting Georgia to submit a proposed decree at the beginning of the following term, while allowing reasonable time for defendants to complete improvements that might eliminate the injury.¹⁵⁴ Instead, Georgia consented to a longer period for the attempted control measures and agreed to a stipulated course of conduct to be followed by the two defendants. The key elements were major reductions in sulfur emissions (fifty percent or more), limitations on plant expansion,

153. *Tennessee Copper Co.*, 206 U.S. at 237-38 (citations to *Missouri v. Illinois* omitted). The first Mr. Justice Harlan, in an opinion not joined by any other members of the Court, concurred in the result finding that Georgia as a party had produced ample evidence to justify equitable relief and expressly disavowed joining in creating a special rule of equity applicable to states as sovereigns. *Id.* at 239-40.

154. *Id.* at 239.

monitoring daily and weekly emission limits rather than annual averages, and a compensation fund for payment of damages suffered by Georgia and its inhabitants. Tennessee Copper conformed to the stipulation to Georgia's satisfaction, but Ducktown Sulphur did not. Thus, Georgia returned to the Supreme Court to seek an injunction. In its ruling favoring Georgia, the majority rejected the arguments of Ducktown Sulphur that its extensive pollution control activities had so changed the conditions that Georgia was no longer entitled to a decree.¹⁵⁵ The decree the Court ordered was quite similar in its principal terms to the stipulation that Georgia claimed was not adhered to by Ducktown.¹⁵⁶ Standing back from the details, the net result in this major interstate pollution case was an injunction issued in favor of the State of Georgia upon a showing of substantial harm but without a traditional balancing of the equities. The result was not total abatement of Ducktown's activities; it was abatement to a level that Georgia effectively had indicated was acceptable by its prior stipulation. Similarly, based on the ability of Tennessee Copper to meet the terms of the stipulation, the abatement required attaining a performance level that allowed the continued (profitable) operation of the smelting industry in that locale.

Due to the stipulated agreement and decree in its image, the *Ducktown* decree loses its "all or nothing" adversarial character. That does not diminish its precedential value. The Holmes view, set out at length above, in which recognition of state sovereignty modifies the traditional rules of equity jurisprudence, is still in force. What has occurred is sufficient abatement that the now altered operation of the smelters is not invading Georgia's rights as she asserted them.

Chicago's sewage figures prominently in the law of interstate nuisance. The original *Missouri v. Illinois* litigation arose in relation to Chicago's initial efforts to send its sewage southward through the Illinois River system into the Mississippi River which forms Missouri's eastern border. That case provided the backdrop for the stentorian pronouncements of Justice Holmes, equating that pollution to a *causus belli*,¹⁵⁷ which became the legal bedrock on which the *Ducktown* opinion rests. That same analysis of the

155. The dissent of Justice Hughes, joined by Chief Justice White and Justice Holmes is a bit enigmatic, but seems to have differed on whether Ducktown's efforts had made a sufficient improvement. The dissenting opinion in its entirety reads: "I do not think that the evidence justifies the decree limiting production as stated." *Georgia v. Tennessee Copper Co.*, 237 U.S. 474, 478 (1915).

156. *Id.* The Court subsequently revisited its decree and made minor changes in its terms. See *Georgia v. Tennessee Copper Co.*, 240 U.S. 650 (1916).

157. *Missouri v. Illinois*, 200 U.S. 496, 520-21 (1906).

sovereign's right to be free of harm to its sovereign interests, not the previously described equitable apportionment doctrine, was at the forefront in the interstate litigation initiated by the Great Lakes states challenging Illinois' use of Great Lakes water to "flush" that sewage southward.¹⁵⁸

The Chicago Diversion interstate litigation¹⁵⁹ has far more in common with the interstate nuisance cases than it does with late twentieth century equitable apportionment cases. Most simply, in *Wisconsin v. Illinois* and *Michigan v. Illinois*,¹⁶⁰ the other Great Lakes states sought an injunction against Illinois in their quasi-sovereign capacities against activities taking place in Illinois that caused substantial interference with enjoyment of lands and waters in their states. In that case, the complainant states alleged that the Chicago Diversion, as it was being operated at the time, was causing a drop in water levels on Lake Michigan and the downstream lakes of approximately six inches. That reduction in flow and channel depth, in turn, resulted in substantial lost carriage capacity, lost hydropower generation, and some adverse shoreline lakefront effects. The Court, relying on extensive quantified findings compiled by Special Master (and former Justice) Charles Evans Hughes, confirmed that the magnitude and extent of those "great losses" of the complainant states "are made apparent by these figures."¹⁶¹ After concluding that only a bit less than one-half of the water being diverted was authorized by the Secretary of the Army pursuant to proper exercise of congressionally delegated authority, the Court referred the case to the Special Master for "the restoration of just rights to the complainants" in a manner "as speedy as practicable."¹⁶² The Court called for abatement, not balancing.

The Master subsequently recommended, and the Court approved, a decree¹⁶³ that put Illinois on an eight-year schedule and reduced the diversion by almost eighty percent. Importantly, a

158. See *Wisconsin v. Illinois*, 449 U.S. 48 (1980); *Wisconsin v. Illinois*, 388 U.S. 426 (1967); *Wisconsin v. Illinois*, 289 U.S. 395 (1933); *Wisconsin v. Illinois*, 281 U.S. 696 (1930); *Wisconsin v. Illinois*, 281 U.S. 179 (1930); *Wisconsin v. Illinois*, 278 U.S. 367 (1929). Ironically, by the time of the later litigation, Missouri, joined by the other downstream Mississippi River states, intervened on the side of Illinois because they now were enjoying river navigation benefits supported in part by the diverted Great Lakes water.

159. There also is Chicago Diversion litigation commenced by the United States on behalf of the Corps of Engineers to compel the corporate entity operating the waterworks and to abide permit limitations imposed on diversion pursuant to Corps authority granted by the Rivers and Harbors Act of 1899. See *Sanitary Dist. of Chicago v. United States*, 266 U.S. 405 (1925).

160. See 289 U.S. 395 (1933); *Wisconsin v. Illinois*, 281 U.S. 696 (1930); *Wisconsin v. Illinois*, 281 U.S. 179 (1930); *Wisconsin v. Illinois*, 278 U.S. 367 (1929).

161. *Wisconsin v. Illinois*, 278 U.S. 367, 409 (1929).

162. *Id.* at 421.

163. *Wisconsin v. Illinois*, 281 U.S. 179 (1930).

reduction to that level of diversion corresponded to a level where earlier findings of the Special Master indicated the harms to the complainant states would be slight. Thus, there would be no need for further abatement because at that level of diversion, the complainant states already would no longer be suffering legally cognizable injury. Importantly for public health, the Court affirmed the Master's recommendation that the effluent from the treatment plants that Chicago was required to construct under the decree would be channeled south out of the basin.¹⁶⁴ The Court also allowed a small incremental withdrawal for domestic use.¹⁶⁵

There are three important ways in which the Chicago Diversion litigation indicates that its jurisprudence is more firmly part of the interstate tort line than the equitable apportionment line. First, the Court does not treat Illinois as having any interest in allocating or using the water in ways that might impose adverse consequences on its neighbors. The Court did not ask the Special Master to recommend an apportionment of the water; it asked him to recommend a decree that would abate the injury. Second, the key finding is like that in a nuisance case, and also like that of a potential ACF ecosystem services case. The linchpin of placing liability on Illinois turns solely on the degree of injury to the complainant states which was found to be "great" and "apparent."¹⁶⁶ That same concern for substantial injury limits the scope of the required abatement. Third, there is no balancing of the equities. The public health importance of Illinois' use of the water to send the huge volumes of sewage away from Lake Michigan and out of the otherwise stagnant waters of the Chicago River was obvious. Again, like *Ducktown*, the Court had an available outcome that was not an all or nothing result. The federally permitted level of diversion, supported by the Corps' power over navigation, and the new reduced level of diversion at which Chicago was expected to operate the system, were sufficient to solve the public health problem without unacceptable harm to the complainant states.

The Chicago Diversion litigation bears only a superficial resemblance to the Court's equitable apportionment jurisprudence: it involves water diversion and an interstate resource. Professor Hall has commented about the Chicago Diversion litigation:

164. The Court's opinion openly questioned the wisdom of the Great Lakes states in seeking to have the effluent discharge returned to Lake Michigan ("we are somewhat surprised that the complainants should desire the effluent returned," *id.* at 200), and showed more common sense than the complainants by rejecting that request.

165. *Id.* at 200.

166. *Wisconsin v. Illinois*, 278 U.S. at 409.

It is notable that the Supreme Court's opinions in the Chicago diversion dispute make only minor references to the Court's previous (primarily western) equitable apportionment cases. The Court's equitable apportionment doctrine began to evolve in the prior cases *Kansas v. Colorado* and *Wyoming v. Colorado*, yet the only references to these decisions were in a string citation regarding the Supreme Court's jurisdiction and a comment regarding the possibility that Congress could take action on the matter. Further, there is no discussion of the various water use doctrines in the relevant states. Nor does the Court establish any rule of law for allocating the waters of the Great Lakes among the states of region. These elements are typically central to the Supreme Court's handling of western equitable apportionment cases.

The Supreme Court's lack of reliance on its previous equitable apportionment cases may have been intentional. Perhaps the Court recognized that Great Lakes water management was less an issue of apportionment of water rights and more an issue of defining the bounds of the states' shared reasonable use duties.¹⁶⁷

Given the nature of the underlying riparian rights, water law systems of all states involved in the controversy further that hypothesis. There is a marked similarity between the nature of common law riparianism and the law of nuisance. The Restatement (Second) of Torts states the principal precept of common law riparianism as a liability rule: "A riparian proprietor is subject to liability for making an unreasonable use of the water of a watercourse or lake that causes harm to another riparian proprietor's reasonable use of water or his land."¹⁶⁸ In salient regards, this is a nuisance standard and it appears to correspond to the approach of the Court in *Wisconsin v. Illinois*.

Distancing the Chicago Diversion case from equitable apportionment accentuates one aspect of how the case may be used as a precedent in ecosystem services cases. Simultaneously, there are elements present in that case that are shared with equitable apportionment cases that further, rather than diminish, the claims of

167. Noah D. Hall, *Toward a New Horizontal Federalism: Interstate Water Management in the Great Lakes Region*, 77 U. COLO. L. REV. 405, 421-22 (2006) (footnotes omitted).

168. RESTATEMENT (SECOND) OF TORTS § 850 (1979).

state's harmed by impairment of ecosystem services. As with the quasi-sovereign¹⁶⁹ interest of the states in nuisance cases, the equal dignity of each of the states as quasi-sovereigns in equitable apportionment cases has important consequences for escaping the harsh outcomes that might seem to flow from the late twentieth century equitable apportionment approach taken in Vermejo River apportionment litigation. The precept of state sovereignty over shared basin resources announced in the first equitable apportionment case bears repeating:

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. It can impose its own legislation on no one of the others, and is bound to yield its own views to none.¹⁷⁰

That attitude is repeated in other apportionment cases. For example, in *New Jersey v. New York*,¹⁷¹ one of the first steps that led to the framing of the Delaware River Compact was the Court's decision to put New York on notice that New York City could not command the river to the detriment of the co-riparian states. Even more on point is the Columbia-Snake anadromous fish apportionment case¹⁷² where the Court made it clear that the sovereign claim of each state to its resource base was sufficient to require sister states to respect that interest. There is much in the equitable apportionment cases that complements the interstate resource impairment cases and strengthens the hand of Florida when its ecosystem services claim is the basis of its objections to Georgia activities. To an extent, the full import of the Vermejo River equitable apportionment litigation must be understood as applicable only to a narrow range of western states' equitable apportionment cases where the interstate conflict is aptly governed by principles of prior appropriation law.

169. Justice Holmes used the term "quasi-sovereign" to refer to the surrender of sovereignty of the states by which they renounced their ability to go to war with one another and accepted the forms of interstate dispute resolution set forth in the United States Constitution, most notably, via suit in the Court's original jurisdiction.

170. *Kansas v. Colorado*, 206 U.S. 46, 97 (1907).

171. 347 U.S. 995 (1954).

172. *See Idaho ex rel Evans v. Oregon*, 462 U.S. 1017 (1983).

D. Preemption¹⁷³ and Non-Preemption of Interstate Nuisance Remedies

The favored position of interstate nuisance, indeed its availability in the interstate stream context, can be called into question by the decisions announced by the United States Supreme Court in *Illinois v. City of Milwaukee*¹⁷⁴ and *Int'l. Paper Co. v. Ouellette*.¹⁷⁵ Those decisions are sometimes read as preempting interstate federal common law water pollution nuisance through the operation of the Clean Water Act. That conclusion, while accurate in a confined range of application, is not readily extended to cases of interstate impairment of ecosystem services.

Illinois v. City of Milwaukee reached the high court as the culmination of effort on the part of William Scott, the Illinois Attorney General, to bring a high profile and exceedingly popular lawsuit against the City of Milwaukee. The suit sought to protect the Illinois' Lake Michigan shores from beach closures and other impairments caused by the release of untreated and inadequately treated sewage by Milwaukee's rather antiquated combined sanitary and storm sewer system. The system's two outfalls into Lake Michigan were located less than thirty miles from the Wisconsin-Illinois state line, roughly ninety miles north of Chicago. The severity of the problem was made worse by the fact that Milwaukee had inadequate capacity in its combined system for sewage and runoff, so extensive raw sewage overflow events were triggered by even moderate rainfall events several times each year.

Initially, Illinois sought to invoke the original jurisdiction of the United States Supreme Court, as had Georgia in the *Ducktown* litigation. Instead of being allowed to proceed in that forum, the Court met the petition with its first opinion in the case.¹⁷⁶ The Court acknowledged that the case was within the limits of its original jurisdiction,¹⁷⁷ but found that jurisdiction was not obligatory and should be reserved for appropriately important cases, a determination that could be influenced by the availability of an

173. The term preemption is usually reserved for preemption of state law or regulation by federal enactments. The legal phenomenon at work here is one of federal statutory interpretation, by which the presence of remedies for interstate water pollution in the Clean Water Act, a "comprehensive" statute, may be held to limit the scope of otherwise available common law remedies. See *infra* notes 190-92 and accompanying text.

174. 451 U.S. 304 (1981).

175. 479 U.S. 481 (1987).

176. See *Illinois v. City of Milwaukee*, 406 U.S. 91 (1972).

177. Article III, Section 2, Clause 2 of the United States Constitution provides that, "In all Cases . . . in which a State shall be a Party, the Supreme Court shall have original Jurisdiction." See *id.* at 93, 99.

alternative competent forum.¹⁷⁸ The Court went on to explain that the case was within the grant of federal question jurisdiction because it stated a claim arising under federal common law of interstate nuisance.¹⁷⁹ In dicta, the Court's opinion in *Illinois v. City of Milwaukee* suggested that water pollution control legislation might displace the common law if it comprehensively regulated the subject.¹⁸⁰ The opinion did not specifically mention the Federal Water Pollution Control Act Amendments of 1972¹⁸¹ that were then being debated by Congress, but once that extensive legislation was enacted, it was certain that Milwaukee would seek dismissal on the preemption ground.¹⁸²

Subsequently, Illinois filed the case in the United States District Court for the Northern District of Illinois located in downtown Chicago. The court found that the raw and inadequately treated sewage discharged by Milwaukee that befouled the Lake Michigan beaches and waters in Illinois was a nuisance and significantly impaired Illinois' rights. In the Seventh Circuit's opinion on this issue, the rule was stated very plainly: "The elements of a claim based on the federal common law of nuisance are simply that the defendant is carrying on an activity that is causing an injury or significant threat of injury to some cognizable interest of the complainant."¹⁸³ *Georgia v. Tennessee Copper* was cited as authority.¹⁸⁴ The District Court, affirmed by the United States Circuit Court of Appeals for the Seventh Circuit, ordered specific relief that would result in adequate treatment of all sewage and would require Milwaukee to build its capacity "to permit full treatment of

178. *Id.* at 93. "The question of what is appropriate concerns, of course, the seriousness and dignity of the claim; yet beyond that it necessarily involves the availability of another forum where there is jurisdiction over the named parties, where the issues tendered may be litigated, and where appropriate relief may be had." *Id.* at 93; *see also* *Washington v. General Motors Corp.*, 406 U.S. 109 (1972) (decided the same day, the Court declined to assert original jurisdiction over a claim by states against automakers that simultaneously was within the subject matter jurisdiction of the lower federal courts).

179. *Illinois v. City of Milwaukee*, 406 U.S. at 98. The bulk of the opinion is devoted to describing the origin of the federal common law in this area, with reliance on the principles already described herein. Two of the most prominent cases are, of course, *Missouri v. Illinois* and *Ducktown*.

180. *Id.* at 93.

181. 33 U.S.C. §§ 1251-1376 (2000).

182. *See Illinois v. City of Milwaukee*, 366 F. Supp. 298 (N.D. Ill. 1973) (rejecting Milwaukee's argument). This was an interlocutory ruling and could only be appealed after a final judgment, which it was. *See Illinois v. City of Milwaukee*, 599 F.2d 151 (7th Cir. 1979) (rejecting broad preemption argument, preempting and reversing effluent limitations for treated sewage that were different than those set by CWA). *See City of Milwaukee v. Illinois*, 451 U.S. 304 (1981) (accepting somewhat broader preemption argument) discussed *infra* notes 185-86.

183. *See Illinois v. City of Milwaukee*, 599 F.2d 151, 166 (7th Cir. 1979) (citing *Georgia v. Tennessee Copper*, 206 U.S. 230, 237-38 (1907)).

184. *Id.*

water from any storm up to the largest storm on record for the Milwaukee area.”¹⁸⁵

That abatement order was vigorously resisted by the City of Milwaukee and numerous amici involved with municipal sewage treatment concerns because of its economic impact. For example, Milwaukee’s brief stated:

The decision in this case will determine whether your petitioners, the City of Milwaukee, the Sewerage Commission of the City of Milwaukee, and the Metropolitan Sewerage Commission of the County of Milwaukee (cumulatively, “Milwaukee”), must spend, and if so when they must spend, literally hundreds of millions of dollars over and above what is required under pollution discharge permits issued pursuant to the new federal statutes. The Court’s decision will affect the expenditure of tens of billions of dollars by municipalities across the nation.¹⁸⁶

A contemporaneous EPA document had estimated the nationwide cost of improving combined sewage overflow treatment capacity at more than \$21 billion for limiting raw sewage bypass discharge events to a level of two unrelated events per facility each year.¹⁸⁷ The standard of preventing a bypass under the worst recorded conditions, by comparison, was not even considered by the EPA.¹⁸⁸

With the case in that posture, the Supreme Court reviewed the preemption rulings below. In effect there were two, because the Seventh Circuit had reversed the imposition by the District Court of specific effluent limitations for *treated* sewage that were different than those prescribed for the facility under its NPDES permit. Combined Sewer Overflows (CSOs), in contrast, were not the subject of specific numerical effluent limitations and the Seventh Circuit had felt free to uphold the stringent abatement ruling. CSO’s however, were addressed in other ways by the CWA and by the EPA, the agency empowered to implement the CWA. Justice Rehnquist reached out to create a broad principle of displacement

185. *City of Milwaukee v. Illinois*, 451 U.S. at 312.

186. Brief of Petitioners-Appellants at 6-7, *City of Milwaukee v. Illinois*, 451 U.S. 304 (1981) (No. 79-408). The cost assertions of petitioners were well founded. See also REPORT BY THE COMPTROLLER GENERAL OF THE UNITED STATES: LARGE CONSTRUCTION PROJECTS TO CORRECT COMBINED SEWER OVERFLOWS ARE TOO COSTLY, CED-80-40, 22 (Dec. 28, 1979).

187. See EPA, 1978 NEEDS SURVEY: COST METHODOLOGY FOR CONTROL OF COMBINED SEWER OVERFLOWS AND STORMWATER DISCHARGE, Rpt. No. 430/9-79-003 (Feb. 10, 1979) (pursuant to Sec. 516(b) of FWPCA, the EPA must submit a national needs report to Congress not later than February 10th of each odd numbered year).

188. *Id.*

of federal common law:

We conclude that, at least so far as concerns the claims of respondents, Congress has not left the formulation of appropriate federal standards to the courts through application of often vague and indeterminate nuisance concepts and maxims of equity jurisprudence, but rather has occupied the field through the establishment of a comprehensive regulatory program supervised by an expert administrative agency.¹⁸⁹

The majority found the CWA comprehensive in its regulation of dischargers required to have NPDES permits. More subtly, it also found that as for those dischargers, the displacement of federal common law of interstate water pollution nuisance applied to aspects of their discharges that were not the subject of numerical effluent limitations, or CSOs. The majority said:

The overflows do not present a different case. They are *point source discharges* and, under the Act, are prohibited unless subject to a duly issued permit. As with the discharge of treated sewage, the overflows, through the permit procedure of the Act, are referred to *expert administrative agencies for control*. All three of the permits issued to petitioners explicitly address the problem of overflows.¹⁹⁰

The opinion thereafter recited the ways in which CSOs were addressed explicitly in the permits and held that the ways in which they were addressed comported with duly promulgated EPA regulations.¹⁹¹

A few years later, in the case of interstate pollution of Lake Champlain, the Court further confined common law actions seeking to redress interstate water pollution nuisances.¹⁹² In that instance, International Paper Company was located on the New York side of the lake and was discharging into the lake pursuant

189. *City of Milwaukee v. Illinois*, 451 U.S. at 317. He also made clear that “displacement” of federal common law by federal statute can be found upon a lesser finding of congressional intent than preemption of state law because of the strong police power interest of the states and the historic federalism based recognition of concurrent regulation whenever Congress or its laws do not make the preemption express or plainly implied. *Id.* at 320.

190. *Id.* at 320 (emphasis added).

191. *Id.* at 321-22.

192. *See Int'l. Paper Co. v. Ouellette*, 479 U.S. 481 (1987).

to conditions contained in an NPDES permit.¹⁹³ Vermont plaintiffs sued in state law private nuisance for the unreasonable interference to their property caused by the defendant's pollution of the lake.¹⁹⁴ To begin with, the Court clearly recognized that state law nuisance actions survived the passage of the Clean Water Act and were not preempted by it.¹⁹⁵ This was clearly intended by Congress, as evidenced by the inclusion of section 510 of the Clean Water Act that states:

Except as expressly provided . . . nothing in this chapter shall (1) preclude or deny the right of any State or political subdivision thereof or interstate agency to adopt or enforce (A) any standard or limitation respecting discharges of pollutants, or (B) any requirement respecting control or abatement of pollution; except that if an effluent limitation, or other limitation, effluent standard, prohibition, pretreatment standard, or standard of performance is in effect under this chapter, such State or political subdivision or interstate agency may not adopt or enforce any . . . less stringent . . . effluent limitation, or other limitation, effluent standard, prohibition, pretreatment standard, or standard of performance . . . ; or (2) be construed as impairing or in any manner affecting any right or jurisdiction of the States with respect to the waters . . . of such States.¹⁹⁶

What the Court did do to limit the plaintiffs, however, was limit the choice of law that could be applied to the case. The Court held that only New York state nuisance law, the law of the situs of the factory and the law of the state that had issued the permit could be applied.¹⁹⁷ The rationale was that the regulated party should have all of its responsibilities ascertainable with certainty by the reference to the law of the sovereign in whose territory it was operating.¹⁹⁸

193. *Id.* at 481.

194. *Id.*

195. *Id.* at 498-99.

196. 33 U.S.C. § 1370.

197. *Int'l Paper Co.*, 479 U.S. at 497.

198. This is a very odd result in at least two respects. First, over the years the Court has exercised very little federal control of choice of law. *See e.g.* *Allstate Ins. Co. v. Hague*, 449 U.S. 302 (1981). Second, the limit of choice of law was not a position argued by any of the parties or amici. Importantly for present purposes, the most interesting position taken in the briefs was that of the United States, which suggested that holding a valid NPDES permit and operating within the limits prescribed in the permit, should, in the remedy

City of Milwaukee v. Illinois (Milwaukee II) and *Ouellette* do not vitiate the force of public interstate nuisance in the ecosystem services context.¹⁹⁹ Both cases arise in the confined context of NPDES regulated discharges. The effluents directly causing the harm to the complainants were explicitly regulated by permits issued to defendants as part of an unusually comprehensive and tightly integrated statute for the regulation of those discharges and the injuries to water quality that result. Despite suggestively broad language in *Milwaukee II*, in the end, Justice Rehnquist's opinion was founded on direct regulation of the CSOs, not evisceration of a common law remedy for aspects of interstate damage that were not part of the CWA's direct regulatory web.

The case for the continued vitality of interstate nuisance actions by states to protect their quasi-sovereign interest in ecosystem services should not be seen as impaired by *Milwaukee II* or *Ouellette*. Most, if not all impairments of ecosystem services are not the direct result of a comprehensively regulated activity that is regulated to prevent that type of harm. For that reason, *Milwaukee II* is simply inapplicable. Reading it so broadly to find wholesale displacement of interstate nuisance lawsuits contradicts Justice Rehnquist's own language in the case in which he stresses the multifaceted direct regulation of the specific offending activity by the CWA. Moreover, in situations like the ACF, where there is not effective comprehensive federal regulation of the resource, it would be quite surprising to invoke overbroad language of Justice Rehnquist to eviscerate that quasi-sovereign state interest²⁰⁰ and leave a complainant state with no remedy whatsoever for undue substantial harm.

It is important to recognize that Illinois, despite being denied the degree of abatement of Milwaukee's discharges that it sought

phase, be a complete defense to an injunction. See Brief for the United States et al. as Amicus Curiae Supporting Affirmance, *Int'l. Paper Co. v. Ouellette*, 479 U.S. 481 (1987) (No. 85-1223). The Court, even though it went well beyond the positions of the parties to decide the case, declined to go in this direction, thereby rejecting preemption of the abatement remedy in the presence of permit compliance. *Id.*

199. *Ouellette* is not even a public nuisance action and does not involve a remedy similar to that sought by Georgia in *Ducktown* or by the Great Lakes states in the Chicago Diversion litigation. Moreover, *Ouellette* does not cut off common law remedies, including possible abatement. Plaintiffs will be able to obtain a fair application of source state nuisance law. Allowing the case to proceed in the courts of the victim state (Vermont) was a reasonable assurance that New York nuisance law would be honestly applied as required by full faith and credit, and the equities fairly balanced without the fear of a local New York judge protecting the local polluting entity against loss or abatement if warranted.

200. It would be even more surprising to find Justice Rehnquist as the intentional architect of a doctrine that allowed speculative characterizations of federal legislation to debase a long-recognized core element of state sovereignty. Cf. David L. Shapiro, *Mr. Justice Rehnquist: A Preliminary View*, 90 HARV. L. REV. 293 (1976).

in the common law action, still obtained a remedy that substantially improved water quality and reduced impairment caused by Milwaukee to a reasonable level. The CWA, which was not in place when Illinois originally sued, provided an effective remedy, albeit a less demanding one, than the District Court was willing to grant in the nuisance litigation. Milwaukee improved the adequacy of its sewage treatment and vastly reduced the frequency of CSO bypasses. In that regard, the outcome in *Illinois v. Milwaukee* has a great deal in common with the levels of abatement won by Georgia in the *Ducktown* case and the Great Lakes states in the Chicago Diversion litigation. None of the offending activities were totally abated. In practical terms, all of the challenged uses were vital, and the "victim" state, so long as its interest was adequately protected, could no more have expected total cessation of the activity, than could New Jersey expect that New York would not be allowed to have some of the water from the Delaware. State sovereignty is reciprocal. In every case, however, the unacceptable degree of harm was reduced to an acceptable level. Somewhat abstractly, it is possible to describe the difference in the three remedial situations as relating to the source from which the Court obtained the standard it employed to define acceptable interference with the sovereign interest of the complainant state. In *Ducktown*, the Court borrowed a level of pollution to which Georgia had agreed to submit. In the Chicago Diversion litigation, the level of insubstantial injury was determined by findings of the Special Master. In *Illinois v. Milwaukee*, the level of control that renders the impairment not an infringement of Illinois' sovereign interest is the level established by the federal expert agency considering the composite interests of all states as potential dischargers and as potential victims of the discharges. *Milwaukee II* is most assuredly not a death knell for suits by complainant states seeking protection against extraterritorial activities that cause substantial impairment of ecosystem services. There will be no preemption of Florida's claims as they relate to either the Chattahoochee (Corps dam operations) or the Flint (EPD permitted dewatering) in the ACF basin. No one is comprehensively managing the resource under a statute that is intended to address the harms suffered downstream.²⁰¹

201. It is important to recognize that there are some avenues of interstate protection that Florida may seek to invoke apart from interstate nuisance. For example one of the CWA "rights" of the downstream state is the ability to set water quality standards and have them protected from upstream interference. See *Arkansas v. Oklahoma*, 503 U.S. 91 (1992). If the Apalachicola is a water quality impaired stream, for example, setting a heat TMDL that is exceeded due to upstream irrigation-induced increases in the temperature of Flint River source water might protect downstream state ecosystem services. See S.D. Warren

V. CONCLUSIONS

The more extensive the resourceplex, the more likely it is that the stream of benefits flowing from it cannot simultaneously be maximized for all potential users. Thinking about the ACF basin in the most general terms, it is axiomatic that some short term localized benefits are obtained at the cost of longer term productivity, whether locally or in other parts of the basin. It is axiomatic that some consumptive uses of water or effluent assimilation uses of water degrade downstream in situ uses. It is axiomatic that demands for upstream summer storage compete with downstream summer irrigation. As surely as water flows downstream under the pull of gravity, user conflicts flow down the river system with the water, whether in excessive or inadequate amounts, and whether of greater or lesser quality.

In virtually all basins, *laissez faire* governance of river systems, if it ever existed, long ago succumbed to the regulatory commands of federal and state agencies pursuing legitimate, but fragmented water policies. Only in the rarest of cases does a decisionmaker have sufficient authority to manage the entire resourceplex, and even more rarely is that power free from debilitating political fractionalization.²⁰² In the river basin world, the one or two exceptions²⁰³ are hard to replicate. Sovereigns must willingly surrender sovereignty. Usually, one sovereign will have to do so in a setting where it is also giving up a “winning hand” under the existing governance regime. Such acts are seldom taken in the absence of an otherwise insuperable crisis.²⁰⁴

What grows up, as conflicts mature, are efforts by interested parties to influence how the water of the basin is allocated and used. Too often, as in the ACF, those at the bottom of the basin or in its less developed areas, find their ecosystem services being degraded through developmental activities occurring elsewhere in the basin. The law, up until now, has encouraged this pattern. Better knowledge of ecosystem services can be a key factor in arresting the pattern and reversing the trend. Identifying the value of ecosystem services and raising the level of visibility of the activities that encroach upon them greatly increases the chances that those values will be protected.

Co. v. Maine Bd. of Env'tl. Prot., 126 S.Ct 1843 (2006); PUD No. 1 of Jefferson County v. Wash. Dep't of Ecology, 511 U.S. 700 (1994).

202. See generally Janet Neuman, *supra* note 11.

203. See *supra* notes 29-32 and accompanying text for discussion of DRBC.

204. For a different governance model that seeks to retain state sovereignty by managing to a collectively agreed standard see Hall, *supra* note 168.

The process of reshuffling the legal deck begins with the embrace of principles of state sovereignty and resource integrity. These principles were first announced by the Court a century ago. They have never been repudiated, but they were not prominent in the Court's most recent western states equitable apportionment decision. The centurion character of those precedents and the relative lack of intervening cases combine to raise the normative question of whether it remains appropriate to apply them in modern ecosystem services context. To the extent that those early cases were grounded on the nature of state sovereignty in the American federal system, the equation is unchanged. Justice Holmes made it abundantly clear what interest was represented and why the Court must honor it.²⁰⁵

The interstate context holds the most promise for change because the traditional American federalism value of correlative state sovereignty has been and can again be channeled into the adjudication process. There is much in the Court's interstate water jurisprudence that has always been aligned with this concept of state sovereignty in regard to resources, especially water resources. All states are on an equal legal footing in regard to water resources.²⁰⁶ Each is free to choose its own water law. Each state, likewise, comes before the Supreme Court as a co-equal sovereign, whose interests are entitled to the same respect as those of her sister states.²⁰⁷ More emphatically, the Court's interstate nuisance jurisprudence lends itself to protecting a state's interest in ecosystem services against substantial impairment. Georgia maximizes its benefits in the ACF Basin by holding water in upstream reservoirs on the Chattahoochee and consuming water from the Flint and hydrologically linked groundwater for irrigation. Georgia, however, does not have the right to impose a western style appropriation of resource values on Florida, which benefits from the ACF resourceplex in a different, but still substantial manner. For the ACF Basin, it is important that the time for reestablishing the traditional principles of interstate resource sharing be now, before the estuary pays an irreversible price for upstream development spurred by Corps of Engineers tunnel vision, unwise subsidies, and parochial state agency policies. The states have correlative rights to the use of water and the ecosystem services of the resourceplex. Georgia may opt for differing levels of use than Florida or Ala-

205. See *New Jersey v. New York*, 283 U.S. 336, 342 (1931).

206. "States admitted to the Union after the original thirteen succeed to the same rights as the original states." A. DAN TARLOCK, *LAW OF WATER RIGHTS AND RESOURCES* § 8.8 (Susan Mauceri ed., Thomson/West) (2006).

207. See, e.g., *Kansas v. Colorado*, 206 U.S. 46 (1907).

bama, but Georgia cannot unilaterally impose the substantial adverse consequences of its water use choices on its “quasi-sovereign” neighbors. The ACF Basin, eventually, will have its own law, and it is reasonable to hope that public nuisance concepts will allow recognition of ecosystem services values to play a role in determining how the water is used.

Appendix A

ACF BASIN FLOWS		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Data set	RIVER	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1976-2005	Chattahoochee	13,100	16,800	19,700	14,100	9,980	8,170	8,910	7,680	6,730	6,480	8,270	11,200	131,130
1938-2005	Flint - Newton	8,510	10,700	12,800	10,600	6,230	4,800	5,230	4,060	3,190	3,310	3,650	5,640	76,720
	Flint-N % of inflow	39%	39%	39%	43%	38%	37%	37%	35%	32%	34%	31%	33%	38%
	Flint-B % of inflow	50%	48%	48%	57%	50%	49%	45%	49%	43%	44%	39%	43%	48%
	above Woodruff -N	21,610	27,500	32,500	24,700	16,210	12,970	14,140	11,750	9,920	9,790	11,920	16,840	209,850
	above Woodruff -B	23,909	29,883	35,417	28,219	18,033	14,530	15,279	13,326	11,010	10,808	12,868	18,447	231,729
1928-2005	Apalachicola-head	27,200	33,300	40,600	34,100	21,700	16,600	17,300	15,100	12,300	12,400	13,400	20,100	264,100
1977-2005	Apalachicola-estuary	28,800	39,000	45,100	36,500	24,000	19,900	22,400	19,500	16,400	14,900	16,100	23,300	305,900
Flint River Data Adjustment to use Bainbridge														
	Bainbridge 2001										2098	1897	2989	
	Bainbridge 2002	3355	4934	6175	5757	3314	2066	2241	1839	2091	3707	6643	6011	
	Bainbridge 2003	6825	8449	17980	13000	14560	12920	10790	10460	5660	4326	4506	5134	
	Bainbridge 2004	5136	11500	7371	4429	4454	4616	4646	3534	12390	8107	7015	8336	
	Bainbridge 2005	7419	9742	13330	28610	9127	12530	20480	10930	5852				
	4 yr total	22735	34625	44866	52796	31445	32132	38157	26763	25993	18238	20061	22470	
	Newton 2001										1539	1504	2472	
	Newton 2002	2986	4249	5345	4581	2747	1434	1744	1311	1490	3172	5242	4770	
	Newton 2003	5065	7048	14080	9039	11810	9869	8557	7595	3811	3026	3280	3997	
	Newton 2004	4219	9165	5325	3248	3358	3477	3270	2704	10370	6212	5890	6248	
	Newton 2005	5619	7856	11780	22770	6412	9471	17760	7669	3703				
	4 yr total	17899	28318	38530	39638	24327	24251	31331	19279	19374	13949	15926	17407	
	Bainbridge %	127%	122%	123%	133%	129%	132%	122%	139%	134%	131%	126%	128%	129%

Source: <http://waterdata.usgs.gov>

Site # Site
 02343801 Chattahoochee near Columbia AL
 02353000 Flint at Newton GA
 02356000 Flint at Bainbridge GA
 02358000 Apalachicola at Chattahoochee FL
 02359170 Apalachicola at Sumatra FL