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Lake Lanier and the Corps: How Adaptive Management Could Help in the ACF System

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LAKE LANIER AND THE CORPS: HOW ADAPTIVE MANAGEMENT COULD HELP IN THE ACF SYSTEM

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I. INTRODUCTION

Climate change's impact on the Southeast is less certain than other parts of the country,[1] but it is expected that there will be "[d]ecreased water availability, exacerbated by population growth and land-use change."[2] Additionally, "[s]ummer droughts are expected to intensify."[3]

It has, therefore, already been noted that water managers "will encounter new risks, vulnerabilities, and opportunities that may not be properly managed with existing practices."[4] For Atlanta, Georgia, this future is already here. The metro Atlanta population clock is now at more than 5.8 million,[5] up from 1.5 million in the early 1970's,[6] and population growth is expected to continue, with Atlanta ranked number 12 on the list of America's Fastest-Growing Cities 2014.[7] Between 1973 and 1999, land use statistics "revealed rapid increases in high-density and low-density urban use at the expense of cropland and forests."[8] This continued growth of the urban environment is also expected to continue.[9] In Georgia alone, municipal

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1. U.S. GLOBAL CHANGE RESEARCH PROGRAM, DRAFT NATIONAL CLIMATE ASSESSMENT 42 (2013), *available at* http://ncadac.globalchange.gov/ (for pages 1–24, navigate down the page to "1. Executive Summary," for pages 25–103, navigate to "2. Our Changing Climate (draft)") ("[M]uch of the Southeast and Southwest had a mix of areas of increases and decreases.").

2. *Id.* at 11.

3. *Id.* at 107.

4. *Id.* at 126.

5. Doug McMillen, *Atlanta's Population Now*, FLICKER (July 9, 2011), https://www.flickr.com/photos/mcmillend/5919826020/.

6. MillCreek, *Buckhead Population Clock Back on Track after Upgrade*, PAULDING.COM (Aug. 1, 2008, 07:05 PM), http://paulding.com/forum/topic/166735-buckhead-population-clock-back-on-track-after-upgrade/.

7. Phil W. Hudson, *Forbes: Atlanta No. 12 Fastest Growing City*, ATLANTA BUS. CHRON., (Feb. 14, 2014, 12:42 PM), http://www.bizjournals.com/atlanta/news/2014/02/14/forbes-atlanta-no-12-fastest-growing.html.

8. C. P. Lo & Xiaojun Yang, *Drivers of Land-Use / Land Cover Changes and Dynamic Modeling for the Atlanta, Georgia Metropolitan Area*, 68 PHOTOGRAMMETRIC ENG'G & REMOTE SENSING 1073, 1073 (2002), *available at* http://asprs.org/a/publications/pers/2002journal/october/2002_oct_1073-1082.pdf.

9. *Id*. at 1073.

and industrial water use is expected to increase from 2,047 million gallons per day in 2010 to 3,236 million gallons per day in 2050.[10] The metro Atlanta area demand is expected to grow from 718 million gallons per day to 1,202 million gallons per day over the same period.[11]

Metro Atlanta accounts for sixty percent of the population in the Apalachicola-Chattahoochee-Flint ("ACF") river system.[12] The ACF river basin drains around 19,800 square miles in western Georgia, eastern Alabama, and the Florida panhandle.[13] These growth figures for Georgia, then, do not account for the expected growth in southeastern Alabama or the minimum flows Florida says are necessary to maintain its oyster beds, timber and pulpwood industries, and to meet water quality standards.

Given this outlook and the obvious need for increased flexibility in water management in the ACF river system, this paper will briefly review the history of the Lake Lanier allocation dispute.[14] The ACF system has a number of dams owned and operated by the Army Corps of Engineers ("Corps"), the operation of which determines how much water flows downstream – or how much is kept behind to be used for other purposes. The flexibility already built into the Corps regulatory framework will then be discussed, followed by suggestions of how adaptive management could improve the situation and what legislative changes Congress could make to facilitate further adaptive management by the Corps.

II. BUFORD DAM AND LAKE LANIER

In authorizing the construction of Buford Dam, Congress did not focus on the potential role of Buford Dam and Lake Lanier as a source of municipal water supply for Atlanta. Lake Lanier is a reservoir on the Chattahoochee River in north Georgia. It was created in 1956 by the Buford Dam, which was originally authorized by the Rivers and Harbors Act of 1945 for navigational purposes, hydropower generation,[15] and flood control.[16] The Act was amended the following year to "include reference to a Corps report, the Wheeler Report, which had formed the rationale for constructing the dam."[17] Water supply was considered an "incidental benefit."[18] Therefore, municipal water supply was not considered an authorized purpose by the Corps, no portion of the costs were allocated to water supply benefits, and the City of Atlanta (or any of its suburbs) did not proportionally share the

10. Richard Hamann, *Can the Endangered Species Act Save the Apalachicola*?, 29 GA. ST. U. L. REV. 1025, 1028 (2013).

11. *Id.*

12. *The Apalachicola-Chattahoochee-Flint (ACF) River National Water Quality Assessment (NAWQA) Program Study*, U.S. GEOLOGICAL SURVEY, http://ga.water.usgs.gov/nawqa/ (last visited Jan. 1, 2014) [hereinafter *ACF River NAWQA Program Study*].

13. *Id.*

14. Excellent articles that discuss the origins, evolving positions, and possible outcomes of the dispute at various stages are available. *See, e.g.*, Robert Haskell Abrams, *Settlement of the ACF Controversy: Sisyphus at the Dawn of the 21st Century*, 31 HAMLINE L. REV. 679, 680 n. 8 (2008).

15. Abrams, *supra* note 14, at 687 (explaining that hydropower generation was to provide baseload power, not peaking power).

16. *See* Rivers and Harbors Act of 1945, P.L 79-14, 59 Stat. at 17.

17. Abrams, *supra* note 14, at 686.

18. Se. Fed. Power Customers, Inc. v. Geren, 514 F.3d 1316, 1323 (D.C. Cir. 2008) [hereinafter *Geren*].

cost of constructing the dam, as was common for cities where municipal supply was an authorized purpose.

As will be amply demonstrated later, allocation decisions by the Corps are driven by institutional inertia and a favoring of vocal, intense interests. The interest by the Atlanta metropolitan area's cities and towns for greater drinking water supply to continue growing was intense. The Army Corps of Engineers began allocating "temporary" storage for water supply to the Atlanta metro area in the 1970's under five-year interim contracts.[19] In 1989, prior to the expiration of the last contract, the Corps recommended Congress reallocate 207,000 acre-feet of storage in Lake Lanier from hydropower to local consumption.[20] Alabama, concerned about the amount of water being withdrawn and the impact of these withdrawals, sued the Corps, arguing the Corps had failed to satisfy NEPA by failing to produce a full Environmental Impact Statement on the reallocation plans (the "Alabama" case).[21] Florida, concerned about the effect of increasing withdrawals on the oyster industry, intervened, as did Georgia. An injunction was issued in the Northern District of Alabama, which barred the Corps and Georgia from entering into any other agreement regarding allocation of water from Lake Lanier to the metro Atlanta area. On January 3, 1992, the three state governors agreed to move the lawsuit to the inactive docket and attempt to reach a settlement.[22] The three states also agreed to fund a water need study and to not increase water withdrawals without the consent of all three states.[23]

In 1997, each of the three states adopted identical bills creating the Apalachicola-Chattahoochee-Flint River Basin Compact.[24] The interstate compact was approved by Congress the same year, and was intended to create a process through which the three states could reach an agreement on water allocation, planning, and dispute resolution. After twelve extensions, the compact expired on August 31, 2003, with no permanent agreement.

In 2000, Georgia requested the Corps to allow Atlanta to withdraw more water from Lake Lanier.[25] Specifically, Georgia requested increases from 1999 averages of 409 million gallons per day to 705 million gallons per day. This was even though municipal water supply was not an authorized use. When the Corps did not respond for nine months, Georgia filed suit against the Corps in the Northern District of Georgia ("Georgia I"),

> "seeking (1) an order compelling the Corps to grant its water supply request; (2) a declaration that the Corps has the authority, without additional Congressional authorization, to grant its request; (3) a declaration that the

19. *Geren*, 514 F.3d at 1318.

20. *Id.* at 1318–19.

21. Alabama v. U.S. Army Corps of Eng'rs, 357 F. Supp. 2d 1313, 1313 (N.D. Ala. 2005), *vacated*, 424 F.3d 1117 (2005).

22. 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, 1460–61 (2004).

23. *Id.* at 1461.

24. William L. Andreen, *Alabama Water Law*, *in* WATERS AND WATER RIGHTS 19 (Robert E. Beck, ed., 3d ed. 2012). *See also* Watt, *supra* note 22, at 1462.

25. Letter from Roy E. Barnes, Governor, State of Georgia, to the Honorable Joseph W. Westphal, Assistant Secretary of the Army for Civil Works (May 16, 2000), *available at* http://www.sam.usace.army.mil/Portals/46/docs/planning_environmental/acf/docs/ga_request.pdf.

> Corps is subject to state law insofar as it does not conflict with federal law and that state law mandates the Corps grant the request; and (4) a declaration that, if applicable federal law prohibits the Corps from granting Georgia's request, then such federal law is unconstitutional on its face or as applied by the Corps."[26]

Florida moved to intervene, was denied by the district court, and appealed the denial to the Eleventh Circuit. On appeal, the Eleventh Circuit found the Corps did not represent Florida's interests, reversed the district court's denial of Florida's motion to intervene, and remanded.[27] Interestingly, the Eleventh Circuit did look at the possibility of Florida bringing an action in the United States Supreme Court for equitable apportionment. However, the court found persuasive Florida's argument that the Supreme Court would decline given the ACF Compact negotiations.[28] Florida was also concerned that, as "an equitable apportionment action weighs the competing equities existing at the time the case is brought," a Corps decision allocating more water to Georgia would impact its future rights.

Southeastern Federal Power Customers, a group of electric cooperatives and municipal power companies representing more than six million customers in the Southeast who purchase hydropower produced by the ACF dams, sued the Corps in December 2000 in the United States District Court for the District of Columbia, arguing that the already-increased withdrawals for local consumption illegally decreased the amount of power available to customers and that they should be provided compensation (the "Southeastern Federal" case).[29] Georgia and metro Atlanta water suppliers intervened, and the parties were sent to mediation.[30] When, in 2003, the case settled, Alabama and Florida intervened to object to the settlement. In October 2003, the Alabama district court from the *Alabama* case ruled that the settlement in *Southeastern Federal* was void because it was in violation of the 1989 injunction, and enjoined the Corps from entering into any new withdrawal contracts without Northern District of Alabama court approval.[31] Georgia appealed the injunction in the *Alabama* case to the Eleventh Circuit. Without waiting for resolution of the injunction in *Alabama*, the D.C. court approved the *Southeastern Federal* settlement subject to the preparation of an Environmental Impact Statement and noted that the settlement could not be implemented until the injunction in the *Alabama* case was lifted.

Alabama and Florida appealed the approval of the agreement in *Southeastern Federal* to the D.C. Circuit Court of Appeals. The D.C. Circuit Court of Appeals found the settlement did not constitute a final order given the contingency of the lifting of the *Alabama* district court injunction. The *Southeastern Federal* appeal was then dismissed and remanded for a final order. The D.C. District Court stayed the *Southeastern Federal* case pending the appeal in the Eleventh Circuit of the injunction in the *Alabama* case. The Eleventh Circuit vacated the injunction in the *Alabama* case (but did not rule on the merits), finding an injunction to be an inap-

26. Georgia v. U.S. Army Corps of Eng'rs, 302 F.3d 1242, 1247 (11th Cir. 2002).
27. *Id.*
28. *Id.*
29. Hamann, *supra* note 10, at 1031.
30. Abrams, *supra* note 14, at 694.
31. Andreen, *supra* note 24, at 20.

propriate sanction and suggesting the appropriate remedy would be a contempt of court proceeding. The D.C. District Court declined to modify its approval of the settlement agreement in *Southeastern Federal* despite Alabama and Florida's arguments, and final judgment was entered. Alabama and Florida appealed the D.C. District Court ruling in *Southeastern Federal* to the D.C. Circuit Court of Appeals.[32] Additionally, the *Georgia I* case was ordered abated in favor of the *Alabama* case.[33] Therefore, at the beginning of 2006, the *Alabama* case was still active in the Northern District of Alabama but without an injunction against the Corps, and *Southeastern Federal* was at the D.C. Circuit Court of Appeals.

The most recent (and record-setting) drought of 2005-2007 exacerbated the disagreement over water allocation.[34] Florida experienced mussel die-offs and Florida requested a motion for a temporary restraining order in the *Alabama* district court case ordering the Corps to maintain flows in January 2006.[35] The parties entered into an interim agreement setting the flows at 6,000 cubic feet per second ("cfs") from the Woodruff Dam at the Florida/Georgia border in late June.[36] Also, in 2006, Florida sued the Fish and Wildlife Service ("FWS") in the Northern District of Florida (the "*Florida*" case), alleging violations of the ESA. FWS issued its biological opinion after Florida filed regarding the mussels and sturgeon in September 2006, requiring 10,000 cfs for June to February and requiring the Corps to undertake adaptive management to identify ways of minimizing harm. In 2007, FWS approved a modification to the biological opinion requesting a minimum 6,500 cfs but allowing 5,000 cfs during drought conditions.[37]

In June 2006, Georgia again sued the Army Corps of Engineers ("*Georgia II*"), arguing that the interim actions taken to protect the mussels were "arbitrary and capricious, in excess of statutory jurisdiction," and did not comply with NEPA. Alabama and Florida intervened, as did Georgia water users including the Atlanta Regional Commission. Alabama moved to have the case transferred to the Northern District of Alabama. The drought continued through 2007, and caused then-Georgia "Governor Sonny Purdue [to] declare a state of emergency in northern Georgia in October, 2007," when metro Atlanta had arguably fewer than 90 days supply of water remaining.[38]

Meanwhile, the legal maneuvering continued. In 2007, four district court cases pending in Georgia, Alabama, and Florida—the *Alabama* case, the *Florida* case, *Georgia I*, and *Georgia II*—were consolidated in the U.S. District Court for the Middle District of Florida.[39] The consolidation did not include *Southeastern*

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32. *Geren*, 514 F.3d at 1319.

33. Georgia v. U.S. Army Corps of Eng'rs, 223 F.R.D. 691, 699 (N.D. Ga. 2004), *aff'd*, 144 F. App'x 850 (11th Cir. 2005).

34. The drought also destroyed billions of dollars of crops in Alabama and Georgia. Dan Tarlock, *How Well Can Water Law Adapt to the Potential Stresses of Global Climate Change?*, 14 U. DENV. WATER L. REV. 1, 5 (2010). However, it is interesting to note that "scientists have concluded that the stresses were the product of regional population growth and bad planning" not climate change. *Id.*

35. Andreen, *supra* note 24, at 22.

36. *Id.*

37. *Id.*

38. Craig Anthony (Tony) Arnold, *Water Privatization Trends in the United States: Human Rights, National Security, and Public Stewardship*, 33 WM. & MARY ENVTL. L. & POL'Y REV. 785, 788 (2009).

39. *See In re* Tri-State Water Rights Litig., 481 F. Supp. 2d 1351 (J.P.M.L. 2007).

Federal, the D.C. District Court case, because it was on appeal.[40] In *Southeastern Federal*, the D.C. Circuit Court of Appeals reversed approval of the settlement, finding it violated the Water Supply Act of 1958, as the reallocation would be a major operational change that required prior Congressional approval.[41] The decision focused on the fact that the reallocation constituted more than twenty two percent of the total storage space in Lake Lanier and approximately nine percent more of the total storage space than was being allocated for local use in 2002.[42] The court also noted that the appropriate baseline for measuring the effect of the reallocation is zero, given that was the amount allocated for water supply at the time of Congressional approval.[43]

Following rejection of the settlement by the D.C. Circuit Court of Appeals, *Southeastern Federal* was likewise consolidated in the Middle District of Florida. Judge Magnuson, presiding over the consolidated cases, found "the Corps did not anticipate any water-supply withdrawals from the reservoir itself, with the exception of the water withdrawn by the cities of Gainesville and Buford."[44] In other words, only after the dam was constructed did the Atlanta metro area see Lake Lanier as a water supply.

The court concluded that water supply for metro Atlanta was not an authorized purpose, that the Corps had to seek congressional approval for the withdrawals, and that the reallocation was a major operational change.[45] Importantly, the "Definite Corps Report indicated that in times of low storage, power peaking would take precedence over municipal and industrial water for Atlanta."[46] Therefore, the court found the Corps had violated the Water Supply Act.[47] However, understanding that requiring the metro Atlanta area to cease withdrawals immediately was not feasible, the court stayed enforcement for three years, to 2012, to allow Georgia to obtain congressional action or to give time for the parties to agree to an alternate settlement.

Georgia appealed Judge Magnuson's order in the consolidated cases to the Eleventh Circuit in April 2010. In June, 2011, the Eleventh Circuit reversed Judge Magnuson's order, finding that water supply was an authorized purpose, and that, therefore, no subsequent Congressional approval was necessary. They did this by finding "that (1) Congress in a pork barrel projects bill said a project should be constructed 'in accordance with' (2) a 1940s federal agency report that (3) incorporated an earlier such report (4) that mentioned municipal supply."[48]

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40. Andreen, *supra* note 24, at 24.

41. *Id.* at 21.

42. Se. Fed. Power Customers, Inc. v. Geren, 514 F.3d 1316, 1319–20 (D.C. Cir. 2008).

43. *Id.* at 1324.

44. *In re* Tri-State Water Rights Litig., 639 F. Supp. 2d 1308, 1321 (M.D. Fla. 2009), *rev'd*, 644 F.3d 1160 (11th Cir. 2011).

45. *Id.* at 1347, 1350.

46. Robert Haskell Abrams, *Water, Climate Change, and the Law: Integrated Eastern States Water Management Founded on a New Cooperative Federalism*, 42 ENVTL. L. REP. NEWS & ANALYSIS 10433, 10446 (2012) [hereinafter *Water*]

47. *In re Tri-State Water Rights Litig.*, 639 F. Supp. 2d at 1354.

48. *Water*, *supra* note 46, at 10446. The author characterizes the entire situation thus: "What is ludicrous about the ACF case is that the protection of a major metropolitan area's water supply is being determined by the nuanced intricacies of what was contained in a report that Congress referenced in enacting legislation authorizing the building of a dam 60-odd years ago." *Id.*

On remand of the consolidated cases, the Eleventh Circuit indicated that the Corps should create a "balance between the water supply use and the power use."[49] Additionally, the Corps was required to review its water supply authority and release conclusions from this review.[50] "[T]he Chief Counsel of the Corps issued a legal opinion in June 2012 [finding] that the Corps has the legal authority to exercise discretion . . . to adjust operations at the Buford Dam to accommodate water supply withdrawals,."[51]

Alabama and Florida appealed the Eleventh Circuit decision in the consolidated cases, but the petition for a writ of certiorari was denied.[52] The Corps had also started scoping for a new ACF Master Water Control Manual Update for the ACF basin, which describes water management operations in the basin.[53] Scoping was re-opened given the Chief Counsel's opinion in 2012 based on the requirements of the Eleventh Circuit's decision. The new ACF Master Water Control Manual Update is expected in 2015.

In the meantime, Florida has petitioned the Supreme Court of the United States, using its original jurisdiction, to determine whether Florida is entitled to equitable apportionment of the waters of the ACF basin.[54] Florida has "requested appropriate injunctive relief against Georgia to sustain an adequate flow of fresh water in to the Apalachicola region."[55] At this time, the Supreme Court has requested an opinion from the Solicitor General expressing the views of the United States.[56]

III. EXISTING CORPS AUTHORITY

The Corps has the ability to actively manage the water assets under its control.[57] This authority is designed to be flexible; the Corps is to operate under a multiple-use paradigm, "whereby it manages water resources for multiple beneficial uses."[58] Lake Lanier is the northernmost of sixteen reservoirs under the Corps's control.[59]

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49. Florida v. U.S. Army Corps of Eng'rs, 644 F.3d 1160, 1200 (11th Cir. 2011).

50. *Id.* at 1205.

51. Andreen, *supra* note 24, at 27.

52. Florida v. Georgia, 183 L. Ed. 2d 694, *cert. denied*, 133 S. Ct. 25 (2012).

53. *ACF Master Water Control Manual Update: Master Water Control Manual update Environmental Impact Statement for the Apalachiolola-Chattahoochee-Flint River Basin*, U.S. ARMY CORPS OF ENG'RS, http://www.sam.usace.army.mil/Missions/PlanningEnvironmental/ACFMasterWaterControlManualUpdate (last visited Jan. 1, 2014). Operations at each dam are then described in Water Control Manuals "specific to each reservoir" and "outline policies and data protocols for flood control operations and drought contingency operations." *Id.*

54. Jeremy P. Jacobs, *Water Policy: Supreme Court Wants Obama Admin Input in 3-State Dispute*, GREENWIRE (Mar. 3, 2014), http://www.eenews.net/greenwire/2014/03/03/stories/1059995428.

55. *Florida v. Georgia*, SCOTUSBLOG, http://www.scotusblog.com/case-files/cases/florida-v-georgia-2/ (last visited Jan. 1, 2014).

56. *Id.*

57. *See* Victor B. Flatt & Jeremy M. Tarr, *Adaptation and Resiliency in Legal Systems: Adaptation, Legal Resiliency & the U.S. Army Corps of Engineers: Managing Water Supply in a Climate-Altered World*, 89 N.C. L. REV. 1499, 1510 (2011).

58. *Id.* at 1511.

59. *ACF River NAWQA Program Study*, *supra* note 12.

However, this authority is limited, especially by the original congressional authorization and any subsequent acts, which provide the authorized uses of the specific dam and reservoir. As noted above, in 1989, the Corps recommended to Congress to reallocate Lake Lanier storage to local supply, having determined that water supply was not one of the original authorized purposes. Later, in May, 2000,[60] when Georgia requested the Assistant Secretary of the Army for Civil Works to "formally reallocate reservoir storage space for local consumption,"[61] the petition was denied because it would involve substantial withdrawals equaling thirty five percent of Lake Lanier's conservation storage and "accommodating it would affect authorized project purposes."[62] The Corps suggested Georgia obtain additional congressional authorization for the requested withdrawal. Then, significantly, the Corps seemed to change course in the settlement agreement with the hydropower customers, agreeing that it could reallocate twenty two percent of the storage capacity without congressional approval.

The U.S. District Court for the District of Columbia, however, in *Southeastern Federal*, found the Water Supply Act[63] "allows federal reservoirs to help serve" municipal supply, [64] but modifications "which would seriously affect the purposes for which the project was authorized, surveyed, planned or constructed, or which would involve major structural or operational changes shall be made *only upon the approval of Congress* as now provided by law."[65] The district court decision in the consolidated cases found that the Corps had abused its discretion by claiming the reallocation was not major. After the appeal to the Eleventh Circuit and the appellate decision, water supply became one of the authorized purposes of the Buford Dam and Lake Lanier. Also, as noted above, the Chief Counsel to the Corps did conclude that the Corps has the legal authority to exercise discretion and permit the reallocation of water to the metro Atlanta area in the amount Atlanta has requested through 2030.

Besides the original authorized purposes, other limitations on the Corps's authority include laws generally applicable to all dams, laws applicable to all federal agencies, agency regulations, and state law.[66] The most significant law generally applicable to all dams may be the Water Supply Act of 1958, noted extensively in the history of the ACF conflict, as this Act requires congressional approval for major allocation changes and, therefore, removed unlimited discretion from the Corps to make operational changes at its dams.[67] In the ACF, the Endangered Species Act is arguably the most significant law applicable to all federal agencies which limits the Corps' actions, given the FWS Biological Opinion that low flows will have an impact on endangered mussels.

As stated by Professor Victor Flatt, "[p]rocedures, policies and contracts may create expectations, but in the case of actions by federal agencies such as the Corps,

60. Andreen, *supra* note 24, at 20.
61. Se. Fed. Power Customers, Inc. v. Geren, 514 F.3d 1316, 1319 (D.C. Cir. 2008).
62. *Id.*
63. Development of Water Supplies for Domestic, Municipal, Industrial, and Other Purposes, 43 U.S.C.A. § 390b(d) (West 2014).
64. Abrams, *supra* note 14, at 696–97.
65. *Geren*, 514 F.3d at 1321–22 (emphasis added).
66. Flatt & Tarr, *supra* note 57, at 1503.
67. *Id.* at 1522–23.

these must not conflict with valid regulations, statutes, and the Constitution."[68] Aside from balancing authorized uses, the Corps must ensure that all uses are respected, that a public hearing occur for a change in the overall balance of uses, and that only non-major changes occur without congressional approval.[69] Therefore, the Corps has significant discretion despite institutional inertia, long-standing policies, outdated water control manuals, and contractual obligations like hydropower production. Unfortunately, the Corps "operate[s] as though [its] mandate is to maintain the status quo."[70] In order to decrease conflict and better manage the water under its control, the Corps must acknowledge and embrace the flexibility it has and learn to use its discretion.

IV. ADAPTIVE MANAGEMENT

According to the Department of the Interior, adaptive management "is a systematic approach for improving resource management by learning from management outcomes."[71] For the Corps and the ACF, adaptive management means determining the most important uses and meeting these first, maximizing other benefits, regularly recalibrating these uses, and then rebalancing allocations based on those uses. This is especially important as drought may increase and the availability of water in the Southeast may decrease with climate change and continued land use change. While current statutes allow for adaptive management by the Corps, current practice hinders it. Several changes – based on internal guidance, actions by Congress, rulemakings by the Corps, and asset-specific actions – could aid the Corps in adopting adaptive management.

Currently, the Corps changes allocations as little as possible, hoping there will be sufficient water every year to meet all needs. "Water law follows hydrology and assumes that regional water balances will remain relatively constant or 'stationary' over time; however, this assumption is no longer viable."[72] Climate change requires water managers "to reduce the adverse impacts through changes in water use and management."[73] One of six main strategies to adapt to this changing condition is "the greater use of integrated regional water management, including adaptive management, to balance ground and surface water use and to incorporate environmental considerations into existing flow regimes."[74]

Water management decisions by the Corps have been plagued by inertia and a static balancing of uses. This "institutional inertia . . . prevents or slows [the Corps] from initiating changes, even when legal requirements or facts on the ground require water management changes."[75] This is especially true where environmental protections or protections of endangered species are an issue.[76] Also due to this

68. *Id.*, at 1518.
69. *Id.* at 1544–45.
70. Hamann, *supra* note 10, at 1058.
71. BRYON K. WILLIAMS ET AL., ADAPTIVE MANAGEMENT: THE U.S. DEPARTMENT OF THE INTERIOR TECHNICAL GUIDE 1 (2009), *available at* http://www.doi.gov/initiatives/AdaptiveManagement/TechGuide.pdf.
72. Tarlock, *supra* note 34, at 2.
73. *Id.* at 4.
74. *Id.* at 6.
75. Flatt, *supra* note 57, at 1511.
76. *Id.* at 1512.

inertia, the Corps ignores changing circumstances and, instead, adheres to longstanding practices.[77] In doing so, the Corps tends to continue all existing uses rather than rebalancing among the beneficial uses authorized.[78]

When the Corps does make allocation decisions, it "tends to favor existing and particular users" who constitute "the most vocal and intense interests."[79] However, "these more intense, concentrated interests . . . wield more power over government decision making than diffuse public water supply interests, such as environmental or recreational flows."[80] The Corps does have the legal authority to take these diffuse interests into account.[81] For example, the Water Resource Development Act of 2007 required the Corps to consider "noneconomic factors, such as public safety, interests of low-income communities, interaction with other water resources projects, and other public benefits."[82] Additionally, the Water Resources Planning Act of 1990 also specifically mentioned environmental protection so long as navigation and flood control are not affected.[83]

Even with this inertia and lack of rebalancing,[84] the Corps would not need adaptive management if the current balance of uses were meeting the needs determined by society as a whole, rather than a select few. "A well-managed system should manipulate the operation of water control facilities to ensure water security to the most important uses first, while simultaneously providing maximal benefits to as many water users as possible."[85] While the Corps may feel it is achieving this goal in the ACF, it is not; the Corps only protected endangered species and environmental flows after being required to do so.[86] However, the Corps could implement this vision, as it does have significant legal authority and discretion to adaptively manage the water resources under its control.[87] When balancing competing water uses and choosing among authorized uses, courts will defer to operational changes so long as those changes are not major changes that seriously affect the project's purposes.

In order to implement adaptive management, it would be helpful to have an internal guidance on what the Corps internally thinks the limit of a "major" opera-

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77. *Id.* at 1513. As noted in the Flatt article, the Corps can sometimes fail to even recognize the changing circumstances, noting that the Corps's estimates of surplus water in the John H. Kerr Dam system may be off by over 300%. *Id.*

78. *Id.* at 1514.

79. Flatt, *supra* note 57, at 1511.

80. *Id.* at 1516. It is interesting to note that Lake Lanier is the most used Corps's lake in the country for recreation. Andreen, *supra* note 24, at 17.

81 Flatt, *supra* note 57, at 1523.

82. *Id.*

83. *Id.* at 1524.

84.*Id.* at 1511.

85. *Water*, *supra* note 46, at 10440.

86. It was mussels in the case of the ACF; however, the Corps has had similarly poor modification practices on the Missouri river (continuing to favor navigation despite species decline) and the sturgeon, which also required litigation to protect. Flatt, *supra* note 57, at 1512–13.

87. Some commentators have noted that "the Corps' position is that it is bound by its own set of legal strictures, although its interpretation of what leeway it enjoys has varied slightly over time." *Water*, *supra* note 46, at 10445. The interpretive aspect of Corps's decision making came through in the ACF dispute with the Corps saying drinking water for Atlanta was a major change and then intimating in the settlement in *Se. Fed. Power Customers, Inc. v. Geren*, 514 F.3d 1316 (D.C. Cir. 2008), that it was not; it equally applies to how much discretion the Corps feels it has to rebalance interests. *Water*, *supra* note 46, at 10446.

tional change is. This could take the form of guidance to the field offices, which would delineate which changes could be made to a water storage reservoir without congressional approval. Obviously, it would help if the water control plans and water control manuals were updated more frequently, but, at a minimum, when issues arose, the guidance would allow water resource managers to more proactively reallocate and balance among competing uses. The concern with this approach, however, is that the courts may disagree with whatever level is decided upon. A guidance may not receive Chevron deference, and, even with this action, water resource managers may be unlikely to change course.

Several Congressional actions could also support the Corps' adoption of adaptive management. To remedy the concern around the deference of the internal guidance and the definition of "major," the Corps should request changes in its broad authority from Congress.[88] Further, Congress should explicitly clarify what constitutes a "major" change. While the courts have indicated that a twenty two percent allocation is major, the Corps needs more clarity and certainty in this area. For example, would a twenty percent change be acceptable? Or is fifteen percent the limit? Knowing precisely where the change becomes major will allow the Corps the operational discretion to make necessary changes without worrying that a court will second-guess what Congress meant. This will protect the Corps from unnecessary litigation and will also encourage the Corps to engage in adaptive management knowing that its changes are not ambiguous from a congressional intent standpoint. Also, since the Corps is likely to need more authority to adapt given water resource changes with climate change, Congress should consider allowing more changes in allocation—up to twenty five or thirty percent—before a change requires Congressional approval.

Another legislative action would be for Congress to clarify that it may also become necessary in the future to limit navigation, flood control, hydropower, or other authorized uses to allow for environmental protection. This would further clarify the Corps' authority to make reallocations and rebalance uses as climate change alters flow and societal values shift. While limited barge traffic or decreased power production may have an economic impact, rather than automatically assuming these should take precedence over other uses, the Corps should be allowed to effectively balance the economic, energy, environmental and climate impacts of its water management decisions. This will aid the Corps in its adaptive management by allowing it to curtail and seriously effect authorized purposes in furtherance of other goals. Another possible policy change would be to show preference for non-consumptive over consumptive uses, which would allow more water for down-basin activities.[89]

A third legislative action relates to money, and the ability of the Corps to both obtain technical information and promulgate policies and decisions based on that information. The Corps, like other federal agencies, is operating in a time of decreased budgets. Modeling, especially at the water basin level, could be helpful in

88. Others have suggested that the Congressional mandates and reservoir operating regimes are so broken that any strategy to deal with global climate change will need "fundamental reform[s]." Tarlock, *supra* note 34, at 30.

89. This is especially true if energy exploration and extraction activities are contemplated in an area.

determining likely scenarios under climate change; however, it is unlikely this effort will be undertaken without more funding and political support. Congress should, therefore, allocate sufficient funding to allow the Corps to have a foundation level of updated information upon which to base allocation and flow decisions. This could also help maintain minimum flows for endangered species and protect other ecological services in the river basin. Additionally, the Corps considers modification and updates of water control plans to be a low priority due to budgetary and manpower constraints.[90] Technical information—and the feedback loop adaptive management envisions—will only be utilized if these plans are reviewed.

Any balancing—especially where long-term, specialized interests are curtailed—will lead to some strife. A regulatory change could provide the input the Corps needs to help ensure its prioritization decisions reflect broader societal values. Scholars have suggested that this prioritization occur through a high-level water control plan rulemaking at the national level, where public input could occur, rather than at the operational level, where engineers are more likely to make decisions without a values discussion.[91] Stakeholder involvement is critical to successful adaptive management, and the ACF basin will be no exception. Public involvement may also spur citizen action, including reducing water use. At a minimum, citizens will understand how the allocations were developed and why.[92]

Of course, in order to be truly adaptive, these decisions must be revisited regularly—not only once every fifty years or when someone files a lawsuit. The Corps should also, therefore, undertake rulemaking to develop a stated policy and attach significant priority to these activities. The policy should also have a stated goal to use the flexibility the Corps has, even absent other congressional action, to manage its water resources more effectively.

Specific adaptive management guidance, developed as a policy at the national level and then implemented by individual districts or projects, would be useful to ensure all flexibility possible is implemented. The adaptive management guidance could include several parts. Scoping will be necessary, both to limit any necessary modeling and to ensure all appropriate stakeholders are involved. Any higher-level new policy guidance from the Corps or Congress should be articulated so social values and priorities established at a national level are incorporated. Any new scientific information from scholarly studies, reports, and other agency materials will also need to be gathered and synthesized. Next, the management review could frankly address the benefits and potential shortcomings of the current allocation scheme and how this balances against the social values and priorities, locally, regionally, and nationally. Allocation or operational changes could then be proposed to maintain water supply to the most important uses and to maximize benefits across other uses.

How often management reviews should occur will be highly dependent on how fast conditions change. Rather than set a one-size-fits-all requirement that a review be completed every five or ten years, the guidance should set parameters that would trigger the update process to begin. For example, triggers could include

90. . Flatt, *supra* note 57 .at 1515.
91. *Id.*, at 1546.
92. Watt, *supra* note 22 at 1469.

a request from a stakeholder group, operational changes of a certain magnitude, or a new drought of record. Codifying this process will ensure that adaptive management becomes part of the standard operation of the Corps.

Finally, the water supply manuals and water control plans for many dams have not been updated and need to be revisited. Prior to this most recent effort, the last Master Manual for the ACF was completed in 1958. Higher-level decisions should be made at Corps headquarters through water control plans applicable to all Corps districts. This would give these plans the most public scrutiny and would allow for the maximum involvement. These plans should address extreme events that are becoming more common, including those anticipated to occur in the future, rather than only those which have occurred in the past. While there will always be some measure of push-back against future adaptive planning, the Corps needs to account for future events rather than constantly being reactionary.

The individual water supply manuals can then operationalize these higher-level decisions, taking into account unique aspects of each river basin or dam system. As part of the updating process for the water supply manuals, the Corps should, at a minimum, determine how it is going to react to changes in in-stream flows and determine the amount of water withdrawal a certain section of the river can sustain. This could inform the effectiveness of reservoir operations in meeting the Corps' stated goals for that river basin and help determine water availability for competing uses.[93] Local involvement at this level would also be beneficial, both for the Corps to understand stakeholder concerns and for the public to understand why certain decisions were made.

It must also be noted that reallocation of water from existing water supply resources meets societal goals at a lower cost than building new resources would.[94] While metro Atlanta has looked at building additional water storage capacity, this is both economically expensive and environmentally destructive, likely requiring significant inter-basin transfers. The Corps's rebalancing of existing resources—preferably with public input and a healthy dose of conservation measures—has a lower overall social cost.

Adaptive management has the ability to take the uncertainty of our changing world, combined with feedback on operational decisions and policies, and obtain better outcomes for the water uses we, as a society, feel are most important. This active management could also provide more benefits to a wider array of water users. While the Corps has been unwilling to do so in the past, it must embrace some level of risk in order to iterate to a solution which will meet these goals, both for metro Atlanta, the greater ACF Basin, and other river basins in the country.

V. CONCLUSION

While it may seem that Georgia, Florida, and Alabama will be unable to come to a settlement regarding how water will be allocated, the Corps has significant discretion to rebalance competing uses in times of drought and climate change. Specific congressional actions could further strengthen the flexibility of the Corps

93. *Id.*, at 1470.
94. *Water*, *supra* note 46, at 10446.

by clarifying the Corps' discretion to use adaptive management to manage the water resources under their control. With the additional flexibility and an open, collaborative process that reflects public interests as well as specialized users, the Corps can more proactively allocate water in our changing world.