

ADAPTATION, LEGAL RESILIENCY, AND THE U.S. ARMY CORPS OF ENGINEERS: MANAGING WATER SUPPLY IN A CLIMATE-ALTERED WORLD*

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There are existing legal systems that embody planned resiliency. One of these is the “multiple-use” paradigm, which instructs resource managers to manage resources to maximize their multiple uses. Despite this built-in resiliency, the agencies charged with such management have not been able to translate this resiliency into practice.

One of these agencies, the United States Army Corps of Engineers, is charged with managing water storage throughout much of the United States for multiple purposes, including human needs, agriculture, transportation, recreation, electricity generation, habitat, and the environment. This Article examines the Corps’ history in managing this water storage and shows that the Corps is currently ill equipped to administer its requirements with resilience. Given the expected demographic growth and climate-changed future, these problems are only going to grow worse.

This Article analyzes the potential obstacles to effective, resilient management and makes suggestions about how the Corps, and ultimately other agencies, can effectively make their administrative systems more adaptive and thus better suited to meet new demands.

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INTRODUCTION

Climate change continues to alter the natural world, and adapting to global climate change has become one of the most important issues facing humanity. But climate change adaptation requires more than responding to a transforming physical world.¹ Our laws must adapt when they can no longer serve their intended function in light of a climate-altered world.²

1. "Climate change adaptation" is a term of art connoting how humans will manage the changes wrought in the world by the changing climate.

2. Robin Kundis Craig, "Stationarity Is Dead"—*Long Live Transformation: Five Principles for Climate Change Adaptation Law*, 34 HARV. ENVTL. L. REV. 9, 27 (2010); *Adapting Legal Regimes in the Face of Climate Change: Overview of Workshop*, UNC SCH. OF LAW: CTR. FOR LAW, ENV'T, ADAPTATION & RES. (Oct. 17, 2008) [hereinafter CLEAR], <http://www.law.unc.edu/centers/clear/workshops/climatechange/overview/default.aspx>.

Some legal systems may contain adaptive mechanisms by design that make them more suited to changing circumstances. It would be wise for any focus on increasing flexibility in legal systems to explore whether existing flexibility provides effective adaptive mechanisms and resiliency, and if not, how legal systems could be changed to do so.

In environmental and natural resource jurisprudence, a flexibility concept called the multiple-use paradigm has been enshrined statutorily.³ This concept, which comes from the Multiple Use Sustained Yield Act,⁴ assumes that resources can be managed to maximize multiple uses or needs. Accordingly, resource agencies can be provided with maximum flexibility and discretion for managing resources when needs or resource amounts change.⁵ In practice, however, agencies are accused of being beholden to particular interest groups.⁶ They are also criticized for managing resources in a static manner without utilizing the flexibility granted by statutes employing the multiple-use paradigm. This last issue, in particular, presents a challenge to climate change adaptation and legal resiliency in general. If resiliency and flexibility are built into a legal system, but not utilized, nothing has been accomplished.

While resiliency and flexibility could be incorporated into legal systems through legislative changes, political realities make legislative change difficult. Another option is to explore existing legal regimes for the necessary flexibility to adapt to a climate-altered world. Natural resource laws in particular provide a good way to examine flexible legal systems to add or improve flexibility under existing legal authority because they were originally designed to provide flexibility in order to accommodate multiple uses.⁷

3. See Jan G. Laitos & Rachael B. Reiss, *Recreation Wars for Our Natural Resources*, 34 ENVTL. L. 1091, 1093 (2004) (noting that the multiple-use paradigm has dominated the legal controls over resources in the United States).

4. 16 U.S.C. §§ 528–531 (2006) (implementing a multiple-use paradigm for national forests).

5. JOHN COPELAND NAGLE & J.B. RUHL, *THE LAW OF BIODIVERSITY AND ECOSYSTEM MANAGEMENT* 404 (2002); Robert B. Keiter, *Public Lands and Law Reform: Putting Theory, Policy, and Practice in Perspective*, 2005 UTAH L. REV. 1127, 1161.

6. Keiter, *supra* note 5, at 1162; see also JAMES RASBAND ET AL., *NATURAL RESOURCES LAW AND POLICY* 216, 1234 (2d ed. 2004) (discussing the role of agencies in natural resource management).

7. See Craig, *supra* note 2, at 34 & n.134 (explaining the multiple-use paradigm in the context of water law); Joseph W. Dellapenna, *Global Climate Disruption and Water Law Reform*, 15 WIDENER L. REV. 409, 441 (2010) (discussing flexibility in riparian rights statutes); J.B. Ruhl, *Climate Change and the Endangered Species Act: Building Bridges to the No-Analog Future*, 88 B.U. L. REV. 1, 12 (2008) (noting the flexibility provided to environmental agencies under the Endangered Species Act). CLEAR studied the impact of climate change on laws outside of resources and the environment in the “Adapting Legal Regimes in the Face of Climate Change” workshop. See CLEAR, *supra* note 2.

This Article focuses on one agency—the United States Army Corps of Engineers (“the Corps” or “the Army Corps”)—the legal regime governing its management of water storage, and the failures of the agency to respond with flexibility to an increasingly dynamic environment. This Article also identifies lessons learned from these failures and suggests how to apply them more broadly. In particular, this Article examines how adaptation in a legal regime might be accomplished administratively.

In the face of a climate-altered world, the Corps, to an extent greater than most agencies, will have to examine its existing business-as-usual strategy and make changes, where it is able, to adapt.⁸ The management of the Corps’ water storage problem is not simply a theoretical problem useful for examining flexibility and resiliency in legal systems. It is a real-world problem affecting lives, cultures, and billions of dollars. Accordingly, this Article seeks to foster change by providing recommendations for adaptation under the Corps’ water management regime.

In order to aid the Corps in its decision making, to assist with compliance for the new directions in water resource planning, and to aid interest groups that interact with the Corps, this Article examines the Corps’ legal authority to make decisions that result in new strategies for balancing countervailing water demands. With a clear understanding of its discretionary power, the Corps can make informed decisions about the extent to which dam and surface water management decisions can be flexible and vary from traditional agency practice in order to address new demands. In addition, given its multiple-use legal options, legal clarity will allow the Corps to choose the best method of action and will highlight the policy responsibility of making such a decision.

By clarifying the complex web of legal authorities at play, this Article also aims to assist stakeholders—whether they represent an interest in hydroelectric generation, drinking water, recreation, navigation, or ecology—so that they may advocate legally sound recommendations to the Army Corps. By speaking to both the Corps and the interest groups that it communicates with, this Article may aid all interested parties in agreeing to twenty-first century water management plans capable of balancing water demands in an altered, dynamic, and complex environment.

Part I of this Article explores the causes of the Corps’ water problem. Part II provides historical context for the discussion by tracking the Army

8. This has been recognized by the Obama administration, which has proposed revisions for the guidelines governing water management planning for the Corps. *See* Press Release, White House Council on Environl. Quality, White House Council on Environmental Quality Releases Revised Principles and Guidelines for Water Resources (Dec. 3, 2009), http://www.whitehouse.gov/administration/eop.ceq/Press_Releases/December_3_2009.

Corps' roots and tracing the maturation of the agency's role in managing the nation's dams and waterways. It also examines the agency's implementation of its own power, which tends to resist change, despite having a legal regime meant to foster flexibility. Next, Part III explores the legal boundaries that establish and limit the agency's power. Such sources of law include a dam's initial authorization, subsequent acts governing specific dam projects, laws generally applicable to all dams, and laws applicable to all federal agencies. Additional controlling authorities include agency regulations and rules as well as state law. After discussing these bounds of legal authority, Part IV distills the legal landscape down to mandatory and discretionary actions regarding the operation of dams by the Army Corps.

Finally, Part V explores what this distilled legal landscape could mean for adapting to a complex, climate-altered world. The Corps must fully understand its legal authority for flexibility in order to pursue a new path forward—especially when this authority requires or permits the agency to take action that varies with its customary decisions. Armed with legal clarity, the Corps will be empowered to be flexible and resolute in its decision making as appropriate. The Corps should also face this new water management environment head on by establishing agency-wide guiding principles and engaging in system-wide and district-specific rulemaking to implement these principles.

I. DEMAND, SUPPLY, AND PUBLIC PRESSURE

A. *Demand and Supply*

A surge in water demand coupled with constant or diminishing water resources and erratic rainfall are pressing the Corps to recalibrate its water management strategies. Three primary factors are at work: global climate change, population increase, and changing energy demands.

Scientific research in the past decade has galvanized international consensus that global climate change is real and that the Earth's temperature is rising as a result of human activity.⁹ Modern climate models “uniformly predict” that the United States will encounter “warmer, wetter

9. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007—THE PHYSICAL SCIENCE BASIS: CONTRIBUTION OF WORKING GROUP I TO THE FOURTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, at v, 5 (Susan Solomon et al. eds., 2007); see also John Leshy, *Notes on a Progressive National Water Policy*, 3 HARV. L. & POL'Y REV. 133, 133 (2009) (“[A] near-consensus among climatologists holds that our hydrologic future will not simply mimic the past.”).

winters [and] hotter, drier summers.”¹⁰ Higher temperatures result in “more rain, less snow, earlier spring runoff, higher evaporation rates, and increased demand for water.”¹¹ Water demand rises because increased temperatures cause corresponding surges in water utilization for cooling, lawn care, and human consumption.¹²

Global climate change also brings unpredictable rainfall as well as irregular and more intense climactic episodes, such as “more extreme precipitation events . . . and more drought events.”¹³ In fact, scientists are coming to understand that “the impact of global climate change on the hydrologic cycle may be more profound and rapid than previously thought.”¹⁴ For instance, though no one weather event can be ascribed to global climate change, the extreme flooding of May 2010 in Nashville, Tennessee, had no modern precedent.¹⁵ The Corps’ ability to manage the dam releases in that instance to trade off between floods in different locations and concomitant economic damages and loss of life has led to intense criticism and an investigation of the Corps’ action.¹⁶ These variable conditions make water management difficult. The effect on dam management includes increased difficulty in maintaining an adequate balance among water needs,¹⁷ imprecision in seasonal inputs into dam and reservoir systems, and less water available to meet existing demands.¹⁸

Increased water consumption in the United States largely stems from a growing population and sometimes rising per capita water usage.¹⁹ The U.S. population grew by thirteen percent between 1990 and 2000,²⁰ and

10. Robert Haskell Abrams, *Water Federalism and the Army Corps of Engineers’ Role in Eastern States Water Allocation*, 31 U. ARK. LITTLE ROCK L. REV. 395, 398 (2009).

11. Leshy, *supra* note 9, at 133. The effects of global climate change on water management often vary according to seasons. For example, higher temperatures lead to increased water demand during the summer, primarily for cooling and irrigation. Abrams, *supra* note 10, at 398. At the same time, rivers in the eastern United States experience the lowest flows in the summer, which places increased pressure on ground water supplies. *Id.*

12. Dellapenna, *supra* note 7, at 411.

13. Abrams, *supra* note 10, at 398.

14. Leshy, *supra* note 9, at 134.

15. Dave Gorham, *Nashville Flood Is Unprecedented*, YOUR WEATHER BLOG (May 11, 2010), <http://yourweatherblog.com/2010/05/nashville-flood-is-unprecedented/>.

16. Bill Harless, *Army Corps Is Criticized for Actions in Flood*, N.Y. TIMES, May 21, 2010, at A16, available at <http://www.nytimes.com/2010/05/21/us/21flood.html>.

17. Operators typically drain reservoir levels in late winter to increase receiving capacity in anticipation of spring rains. As seasonal rain flow becomes increasingly unpredictable, traditional water management plans become antiquated and impractical.

18. See P.C.D. Milly et al., *Stationarity Is Dead: Whither Water Management?*, 319 SCIENCE 573, 573 (2008).

19. Abrams, *supra* note 10, at 398.

20. *United States Population Growth*, CENSUSSCOPE, http://www.censusscope.org/us/chart_popl.html (last visited Apr. 29, 2011). *But see* U.S. CENSUS 2010,

projections forecast that U.S. population growth will rise by 137 million people over the next fifty years.²¹ Much of this growth is occurring in regions already stressed to supply adequate drinking water. For example, the population of the Atlanta metro area grew thirty-nine percent in the period from 1990 to 2000,²² and it is already experiencing serious water shortages.²³ Similarly, California, Arizona, and New Mexico grew by fourteen percent, forty percent, and twenty percent, respectively, in the 1990s, even as those states battled over drinking water from the Colorado River.²⁴ In parts of the eastern United States, dramatic increases in irrigation have augmented water demand.²⁵ Per capita, average daily water consumption in the United States is twice the level of any other country worldwide.²⁶ While basic human needs require approximately thirteen gallons of water daily, some U.S. cities report usage at a rate of fifty to seventy-five gallons per day.²⁷ Much of this use stems from lawn care²⁸ and agriculture,²⁹ while less than twenty percent feeds residential and industry

<http://2010.census.gov/2010census> (last visited Apr. 29, 2011) (reporting the rate of population growth in the United States dropped by 9.7% in the 2000 to 2010 period).

21. *Table 1b. Projected Population Change in the United States, by Race and Hispanic Origin: 2000 to 2050*, U.S. CENSUS BUREAU (Mar. 18, 2004), <http://www.census.gov/population/www/projections/usinterimproj/natproptab01b.pdf>.

22. *Atlanta, GA Population Growth*, CENSUSSCOPE, http://www.censusscope.org/us/m520/chart_popl.html (last visited Apr. 29, 2011).

23. Judge Magnuson, in his decision concerning the Corps' diversion of the water supply from Lake Lanier to provide drinking water to the Atlanta metro area, recently criticized local governments for encouraging "unchecked growth because it increases tax revenue" and individual citizens who do not "consider frequently enough their consumption of our scarce resources, absent a crisis situation." *In re Tri-State Water Rights Litig.*, 639 F. Supp. 2d 1308, 1355 (M.D. Fla. 2009). In fact, he goes on to predict that "[t]he problems faced in the [Apalachicola-Chattahoochee-Flint River] basin will continue to be repeated throughout this country, as the population grows and more undeveloped land is developed." *Id.*

24. *See Arizona Population Growth*, CENSUSSCOPE, http://www.censusscope.org/us/s4/chart_popl.html (last visited Apr. 29, 2011); *California Population Growth*, CENSUSSCOPE, http://www.censusscope.org/us/chart_popl.html (last visited Apr. 29, 2011); *New Mexico Population Growth*, CENSUSSCOPE, http://www.censusscope.org/us/s35/chart_popl.html (last visited Apr. 29, 2011); *see also* Joe Gelt, *Sharing Colorado River Water: History, Public Policy and the Colorado River Compact*, ARROYO (Water Research Ctr., Univ. of Ariz.), Aug. 1997, <http://ag.arizona.edu/azwater/arroyo/101comm.html> (describing the increased Colorado River depletion projections due to increased demand, particularly in California, Arizona, and New Mexico).

25. Abrams, *supra* note 10, at 398.

26. Leshy, *supra* note 9, at 134. By way of comparison, the United States uses 300 billion gallons of oil annually and 400 billion gallons of water daily. *Id.* at 135.

27. *Id.* at 136.

28. *Id.* Reports from 1995 show that in California, nearly half of residential demand is for outdoor use. *Id.* n.18.

29. *Id.* at 136. Much agricultural water use is heavily subsidized by the government, decoupling water pricing from supply and demand. *Id.* at 137.

demand.³⁰ In some regions, demand exceeds surface water supplies, resulting in depletion of groundwater.³¹

Ironically, increased use of renewable energy nationwide places another set of new demands on water supplies.³² Twenty-six states have enacted renewable energy portfolio standards—with an additional five having alternative energy portfolio standards³³—and at the federal level, Congress almost passed legislation to require and fund increases in renewable energy.³⁴ Though demands for renewables on the state and national level can be met by a variety of renewable energy sources, even modest increases in hydroelectric power can have significant impacts on current water resources.³⁵ Moreover, nonhydroelectric renewable energy generation can demand significant water supply.³⁶ For example, two recently proposed solar farms in California—Genesis Solar Energy Project and Mojave Solar Project—would require an estimated 1.241 billion gallons of water annually.³⁷ The thirty-three additional solar farms currently underway for dry regions of California are making water issues even more

30. *Id.* at 136.

31. *See id.*

32. Todd Woody, *Alternative Energy Projects Stumble on a Need for Water*, N.Y. TIMES, Sept. 30, 2009, at B1, available at <http://www.nytimes.com/2009/09/30/business/energy-environment/30water.html?pagewanted=1> (“Here is an inconvenient truth about renewable energy: It can sometimes demand a huge amount of water.”).

33. *Renewable and Alternative Energy Portfolio Standards*, PEW CTR. ON GLOBAL CLIMATE CHANGE, http://www.pewclimate.org/what_s_being_done/in_the_states/rps.cfm (last updated Apr. 7, 2010) (defining renewable energy portfolio standards and alternative energy portfolio standards as requiring “a certain percentage of a utility’s power plant capacity or generation to come from renewable or alternative energy sources by a given date”).

34. *See* H.R. 2454, 111th Cong. (2009) (passing in the U.S. House, but failing to come up for vote in the Senate).

35. Kim Murphy, *Boom in Hydropower Pits Fist Against the Climate*, L.A. TIMES, July 27, 2009, at A12, available at <http://articles.latimes.com/2009/jul/27/nation/na-hydro-power-27>.

36. Woody, *supra* note 32.

37. *See* Todd Woody, *Water Use by Solar Projects Intensifies*, N.Y. TIMES GREEN BLOG (Oct. 27, 2009, 9:19 AM), <http://green.blogs.nytimes.com/2009/10/27/water-use-by-solar-projects-intensifies/>. In California, there are plans to build thirty-five solar plants that would produce electric output equivalent to ten nuclear plants (12,000 megawatts). Woody, *supra* note 32. Water for solar farms competes with demand for drinking water and agricultural uses. *Id.*

Solar thermal plants use mirrors to “heat a liquid to create steam that drives an electricity-generating turbine.” *Id.* The steam is then condensed back to water and must be cooled by one of two processes before reuse. *Id.* With wet cooling, hot water runs through a cooling tower where heat—along with some water—evaporates. *Id.* This requires water to be constantly replaced. *Id.* In contrast, dry cooling uses far less water but is less efficient (and more expensive); fans and heat exchangers cool the hot water. *Id.* In light of the drastic difference in water demand levels between these two processes (compare twenty-five million gallons a year with seven or eight hundred million gallons a year), local water officials have refused to supply some solar farms with water for wet processing. *See id.* (comparing the water draw from several proposed solar plants in the Southwest). In one instance, Solar Millennium abandoned its proposed wet cooling plant (requiring 815 million gallons of water annually) and switched to dry cooling. *Id.*

contentious.³⁸ In Nevada, Solar Millennium recently proposed two solar thermal plants that would require 1.3 billion gallons of water a year, roughly twenty percent of the area's available water.³⁹ Beyond solar farms, biofuel refineries and "clean" coal plants could demand billions of gallons of water annually.⁴⁰

At the same time that demand for water is surging, some regions of the United States are seeing water supplies diminish. While much of the U.S. water supply comes from surface water, undersupply has led to ground water furnishing "a growing portion of current withdrawals (about one quarter)."⁴¹ Unfortunately, groundwater reserves, which are slow to replenish, are being tapped at an unsustainable rate.⁴² In coastal areas, saline intrusion threatens ground water supplies.⁴³

B. Increased Pressure on the Army Corps

In light of this imbalance of supply and demand, interest groups are pushing harder than ever for the Corps to adjust water control management practices to accommodate their desired share of water resources. For example, in the Apalachicola-Chattahoochee-Flint ("ACF") basin, the Corps oversees the flow of the Buford Dam at Lake Lanier, which currently supplies drinking water to over three million residents of the Atlanta metro area. Despite the absence of congressional authorization for the Corps to allocate water from Lake Lanier for water supply,⁴⁴ the Corps acceded to heavy pressure from Atlanta and, for fifty years, has served the Atlanta metro area with drinking water.⁴⁵

Advocates routinely press the Corps to adjust water management practices in order to provide water flow levels that better protect recreation, fish, wildlife, and biota. In northeastern Pennsylvania, recreationists affiliated with the Raymond Proffitt Foundation, a grassroots

38. See Woody, *supra* note 37.

39. Woody, *supra* note 32.

40. *Id.*

41. *Id.*

42. See Leshy, *supra* note 9, at 136.

43. PAUL M. BARLOW, GROUND WATER IN FRESHWATER-SALTWATER ENVIRONMENTS OF THE ATLANTIC COAST 1 (2003), available at <http://pubs.usgs.gov/circ/2003/circ1262/>. Saline intrusion results from rising sea levels and overextraction of fresh water from underground aquifers. Abrams, *supra* note 10, at 398. These events weaken the hydrostatic barrier between fresh and saline water to the point where a separation can no longer be maintained. *Id.*

44. *In re Tri-State Water Rights Litig.*, 639 F. Supp. 2d 1308, 1345-47 (M.D. Fla. 2009) (explaining the terms and history of the Buford Dams authorizing acts and the Rivers and Harbors Act of 1945 and 1946). The initial dam grant authorized its use for navigation, flood control, and hydroelectric power. *Id.* at 1347.

45. Jeffrey Scott, *High Tab for Lanier Litigation: State, Commission Have Paid Millions in Legal Fees on Water Battle*, ATLANTA J. CONST., July 29, 2009, at A1.

environmental organization, pressured the Corps to adjust water flow for the benefit of hunting, fishing, boating, and rafting, and they eventually pursued a lawsuit up to the U.S. Court of Appeals for the Third Circuit.⁴⁶ Similarly, environmental and recreation advocates have pressed the Wilmington District⁴⁷ of the Army Corps to increase water flow in the Kerr Dam system to support striped bass spawning.⁴⁸ In South Dakota, pressure to prioritize fishing and recreational uses has come from the governor,⁴⁹ although outdoor enthusiasts have also lobbied for such action. On the Pend Oreille River in Idaho, residents of Sandpoint objected to a local power company's request for the Corps to plan a five-foot adjustment in water level to track variation in energy demand from season to season.⁵⁰

Though water resources are stressed and interest groups press the Corps to adjust water management plans to serve their particular objectives, the Corps, as explained in Part II, has a history of being slow to modify water management practices.

II. OVERVIEW OF THE ARMY CORPS AND ITS MANAGEMENT OF DAMS

A. *History of the Corps and Dam Regulation*

The Army Corps dates back to 1775, when the Continental Congress assigned a chief engineer to George Washington.⁵¹ Since then, the Corps has played a critical role in the physical and economic development of the United States. Throughout the eighteenth and nineteenth centuries, the

46. *Raymond Proffitt Found. v. U.S. Army Corps of Eng'rs*, 343 F.3d 199, 200–01 (3d Cir. 2003).

47. The Wilmington District is part of the South Atlantic Division of the U.S. Army Corps of Engineers. *South Atlantic Division*, U.S. ARMY CORPS OF ENG'RS, http://www.sad.usace.army.mil/MG_Semonite_Biography.pdf (last visited Apr. 29, 2011); *Water Management*, U.S. ARMY CORPS OF ENG'RS: WILMINGTON DIST., <http://epec.saw.usace.army.mil/> (last visited Apr. 29, 2011) (showing a map of river basins in the Wilmington District).

48. RICHARD B. WHISNANT ET AL., OPERATING POLICIES AND ADMINISTRATIVE DISCRETION AT THE JOHN H. KERR PROJECT 40 (2009), available at <http://sogweb.sog.unc.edu/Water/images/a/ae/FinalReportKerr216DiscretionaryAnalysis.pdf> (detailing the economic and institutional pressures that spur the Corps to accommodate the demands of hydroelectric power contracts).

49. *Governor Says Study Could Change River Management*, KELOLAND TELEVISION (Oct. 30, 2009), <http://www.keloland.com/NewsDetail6162.cfm?id=92008>.

50. Keith Kinnaid, *BPA, Corps Table Lake Level Request*, BONNER COUNTY DAILY BEE (Sandpoint, Idaho), Jan. 16, 2010, http://www.bonnercountydailybee.com/news/article_6e79cd9b-86d2-5281-a62b-01a848a36df1.html.

51. *U.S. Army Corps of Engineers: A Brief History, The Beginnings to 1815*, U.S. ARMY CORPS OF ENG'RS, <http://www.usace.army.mil/History/Documents/Brief/02-beginnings/beginnings.html> (last visited Apr. 29, 2011). The Army Corps in its current recognizable form was created in 1802. *Id.*

Corps was instrumental in erecting domestic military constructions that supported the creation and preservation of the nation.⁵² Today the Corps handles matters relating to navigation, hydroelectric power,⁵³ and natural disasters.⁵⁴ In addition, the Corps is the lead federal flood control agency⁵⁵ and plays a critical role in protecting the nation's wetlands.⁵⁶ The Army Corps currently manages reservoirs that serve ten million people in 115 cities nationwide,⁵⁷ and it builds and maintains dams on U.S. interstate waterways.⁵⁸ The Corps also manages close to 400 dams and reservoirs⁵⁹ and oversees dams generating one-fourth of the nation's hydroelectric power, equivalent to three percent of the total electricity generated nationally.⁶⁰ This makes the Corps the fifth-largest electricity producer in the country.⁶¹

Federal statutes governing the Corps generally fall under title 16 (Conservation), title 33 (Navigation and Navigable Waters), and title 42 (The Public Health and Welfare) of the United States Code.⁶² But the Corps' authority to regulate specific dams generally comes from individual statutes authorizing the creation of these dams.⁶³ While no single statute gives the Corps regulatory authority to manage and operate all dams, some statutes authorize multiple water projects at once and grant the Corps operation authority over them. For example, the Flood Control Act of 1944 gave the Army Corps general authority to submit water development projects for congressional authorization and authorized the Corps to supply

52. *History*, U.S. ARMY CORPS OF ENG'RS, <http://operations.sam.usace.army.mil/usace/history.aspx> (last visited Apr. 29, 2011).

53. *See Introduction*, U.S. ARMY CORPS OF ENG'RS, <http://www.usace.army.mil/History/Documents/Brief/index.html> (last visited Apr. 29, 2011).

54. *Responding to Natural Disasters*, U.S. ARMY CORPS OF ENG'RS, <http://www.usace.army.mil/History/Documents/Brief/09-disasters/disaster.html> (last visited Apr. 29, 2011).

55. *The Growing Nation*, U.S. ARMY CORPS OF ENG'RS, <http://www.usace.army.mil/History/Documents/Brief/index.html> (last visited Apr. 29, 2011); *Introduction*, *supra* note 53.

56. *Introduction*, *supra* note 53. The Corps' authority to protect wetlands derives from section 404 of the Clean Water Act of 1970, which gives the agency regulatory control over the discharge of dredge and fill material into navigable waterways. *See* 33 U.S.C. § 1344(a) (2006).

57. *Civil Works Overview*, U.S. ARMY CORPS OF ENG'RS, www.usace.army.mil/CECW/PlanningCOP/Documents/library/cw101.pdf (last visited Apr. 29, 2011).

58. *See id.* It is also the nation's leading provider of recreation. *Id.*; *Introduction*, *supra* note 53.

59. *Civil Works Overview*, *supra* note 57.

60. *Id.*

61. EVERETT K. MCDANIEL, U.S. ARMY CORPS OF ENGINEERS: THE NATION'S HOMELAND SECURITY ENGINEERS 19 n.16 (2003), available at <http://handle.dtic.mil/100.2/ADA415758>.

62. *Regulatory Authority*, U.S. ARMY CORPS OF ENG'RS: WILMINGTON DIST., <http://www.saw.usace.army.mil/wetlands/authority.html> (last visited Apr. 29, 2011).

63. *See discussion infra* Part III.

surplus water from dams and reservoirs for domestic and industrial uses.⁶⁴ In addition, the 1944 Act “authorized the construction of numerous dams and modifications of previously existing dams.”⁶⁵ Other statutes authorizing new water projects en masse include the Water Resource Development Act (“WRDA”) of 1986 and the WRDA of 1990.⁶⁶

Overall, these statutes require the Corps to operate under a multiple-use paradigm, whereby it manages water resources for multiple beneficial uses.⁶⁷ However, recent conflicts brought about by an imbalance in supply and demand indicate that the Corps does not actually manage water resources in a dynamic manner.⁶⁸ Rather, the Corps traditionally has set general use policies and adhered to those policies until forced to change.⁶⁹

B. *The Army Corps’ Exercise of Its Water Management Power*

As noted in Part II.A, the Corps has been tasked with managing water supplies for various beneficial public uses in a flexible paradigm. As water demand increases, conflicts among users may be expected. However, decisions by the Corps when implementing its water management programs may be exacerbating the conflicts.

1. Inertia

The Corps has exhibited institutional inertia that prevents or slows it from initiating changes, even when legal requirements or facts on the ground require water management changes. By way of example, the Corps has failed to update its operation manual⁷⁰ for the Buford Dam on Georgia’s Lake Lanier for more than fifty years,⁷¹ despite significant

64. See Flood Control Act of 1944, Pub. L. No. 78-534, §§ 1–8, 58 Stat. 887, 887–91 (codified in scattered sections of 16, 33 & 43 U.S.C.).

65. *Digest of Federal Resource Laws of Interest to the U.S. Fish and Wildlife Service: Flood Control Act of 1944*, U.S. FISH & WILDLIFE SERV., <http://www.fws.gov/laws/lawsdigest/flood.html> (last visited Apr. 29, 2011); see also § 10, 58 Stat. at 891–907 (providing for modifications of several dams and authorizing the construction of others).

66. See generally Water Resources Development Act of 1990, Pub. L. No. 101-640, 104 Stat. 4604 (codified as amended at 33 U.S.C. § 2322 (2006)) (authorizing twenty-six separate projects); Water Resources Development Act of 1986, Pub. L. No. 99-662, 100 Stat. 4082 (codified as amended at 33 U.S.C. § 2201 (2006) and in scattered sections of 26 U.S.C.).

67. Sandra Zellmer, *A Tale of Two Imperiled Rivers: Reflections from a Post-Katrina World*, 59 FLA. L. REV. 599, 623–24 (2007).

68. See discussion *infra* II.B.

69. See discussion *infra* II.B.

70. The court appears to use the term “operation manual” to refer to a water control manual (“WCM”). See *infra* note 79 for an explanation of a WCM and other terms.

71. *In re Tri-State Water Rights Litig.*, 639 F. Supp. 2d 1308, 1319 (M.D. Fla. 2009).

changes in its water management practices for the dam since 1958.⁷² In fact, federal district court judge Paul Magnuson, in a 2009 decision, scolded the Corps for operating at a “slow pace” and for being resistant to change⁷³: “It is beyond comprehension that the current operating manual for the Buford Dam is more than 50 years old.”⁷⁴ Judge Magnuson went on to explain that the Corps’ “alarmingly slow pace” complicated the tri-state water battle since “states and municipalities that rely on the [APF] basin for water cannot determine how the operation of the project will affect their interests if they do not understand how the Corps intends to operate the project.”⁷⁵ In another example, the Corps only recently began to update its master plan for managing the federal-government-owned lands at John H. Kerr Dam and Reservoir.⁷⁶ Though the Corps is required to update the plan every five years, the last update occurred in 1980.⁷⁷

The Corps also has a track record of untimely modification of practices for the protection of the environment. In 2002, the National Research Council of the National Academy of Sciences reported that the Missouri River was in “a serious state of decline” and that many species associated with the river’s ecosystem faced “irreversible extinction.”⁷⁸ At that point, the master manual⁷⁹ had not been updated in fourteen years.⁸⁰

72. *Id.* at 1347–50 (articulating the Corps’ interim water supply agreements with various counties that lead to gradual increases in reallocation of storage capacity for water supply).

73. *Id.* at 1355.

74. *Id.*

75. *Id.*

76. See *Wilmington District, Seeks Professional Services to Update Master Plans at Falls Lake, Neuse River Basin, NC*, FEDBIZOPPS.GOV (Sept. 10, 2009), https://www.fbo.gov/?s=opportunity&mode=form&id=9d594e5d2d1d20d199f681d1868d86f6&tab=core&_cvview=1 (calling for consulting bids to update the master plans in September 2009).

77. *Id.*

78. *Congress Urged to Reverse Missouri River Decline*, ENV’T NEWS SERVICE (Jan. 10, 2002), <http://www.ens-newswire.com/ens/jan2002/2002-01-10-03.asp>.

79. The plethora of documents involved in the management of water resources projects warrants an explanation of commonly used terms. A water control plan (“WCP”) governs the storage and release of water flow at each project to achieve an optimal balance between authorized uses for a water resources project. RICHARD ROOS-COLLINS & JULIE GANTENBEIN, HANDBOOK FOR REVISION OF WATER CONTROL PLANS TO IMPROVE ENVIRONMENTAL FLOWS BELOW DAMS OPERATED BY THE U.S. ARMY CORPS OF ENGINEERS AND GUIDE TO THE CORPS GUIDANCE 56 (Robert Wigington & Sam Pearsall eds., 2007), available at <http://www.caddolakeinstitute.us/docs/flows/Corps%20Modeling/2007-10-30%20ACE%20WCP%20Handbook.pdf>. A WCP contains water management purposes as well as water storage and release goals for a particular project.

A WCM, sometimes called an operating plan, is more technical than a WCP and provides operational details for implementing a WCP. *Id.* A WCM is provided for more complex projects in order to document the WCP and to serve as a reference for individuals charged with regulating the water control project. U.S. ARMY CORPS OF ENG’RS, EM 1110-2-3600, MANAGEMENT OF WATER CONTROL SYSTEMS, at 9-5 (1987), available at <http://140.194.76.129/publications/eng-manuals/em1110-2-3600/entire.pdf>. Such a manual is a

This extended delay in revising the water flow plan meant that the water release schedule continued to favor navigation for barges, even though traffic had steadily decreased for more than thirty years.⁸¹ The National Research Council also reported that the delay was due to “disputes among various stakeholders.”⁸² This response reflects hesitancy on the part of the Corps to take decisive action, even when it may have the legal authority to do so.⁸³ In addition, the Corps’ resistance to adjust water flows of the Libby Dam in Montana has left the Kootenai River white sturgeon, North America’s largest freshwater fish and one that existed at the time of the dinosaurs, on the brink of extinction.⁸⁴ Though the Corps has the authority to consider the environmental effects of water management plans,⁸⁵ it took years of litigation to convince the Corps to take action to protect sturgeon.⁸⁶

Similar to untimely modifications, the Corps has a tendency to adhere to longstanding practices in spite of changing circumstances.⁸⁷ Again, the

practical document for daily use. It describes and explains the WCP in full detail, especially with respect to the particularities of a structure or unique water control conditions. If the subject project is part of an existing or planned master WCM, then that project’s WCM could be less extensive. *Id.* at 9-4. While a WCM is particular to one project, a master WCM is used to manage a group of related water resources projects. *Id.*

In this Article, the term “water management plan” is not a term of art, but rather a general term referring to any or all of the document types defined above.

80. *Scientific Management, Return of Natural Water Flow Needed to Help Missouri River Ecosystem Recover*, NAT’L ACADS. OFFICE OF NEWS & PUB. INFO. (Jan. 9, 2002), <http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=10277>.

81. *Id.*

82. *Id.* (“Guidance for the Corps’ water-release schedule is established in its ‘Master Manual.’ The agency began to revise the manual 14 years ago but has not finished because of disputes among various stakeholders.”)

83. Even if the fourteen-year delay was due to disputes among stakeholders, the Corps is not required to achieve agreement among stakeholders in order to revise a WCP, WCM, or master manual. The Eighth Circuit, for example, has found that the Corps generally has great discretion in balancing dam purposes. *See South Dakota v. Ubbelohde*, 330 F.3d 1014, 1027 (8th Cir. 2003). The Corps’ tendency to seek approval from interested parties is taken up in greater detail in Part II.C.

84. *See* Matthew Brown, *North America’s Biggest Fish Slips Towards Extinction*, SEATTLE TIMES, Dec. 17, 2009, http://seattletimes.nwsourc.com/html/localnews/2010532802_apuslargestfishdying2ndldwritethru.html?syndication=rss. Kootenai sturgeon generally grow to nineteen feet long and can weigh 1,000 pounds. *Id.* They have failed to spawn since the construction of Libby Dam thirty-seven years ago, as the dam prevented flooding that triggers the sturgeon’s instinct to swim up river and spawn. *Id.*

85. 33 U.S.C. § 2316(a) (2006) (making environmental protection one of the Corps’ primary missions in operation of water resources projects). For a definition of water management plan, see discussion *supra* note 79.

86. Brown, *supra* note 84.

87. Sometimes the Corps fails to even recognize changing circumstances. For example, on the John H. Kerr Dam system, the states of Virginia and North Carolina created an ad hoc water allocation committee to assist the Corps in allocation choice for surplus water. Scott Kudlas, Rep. to the Ad Hoc Comm., Va. Dep’t of Env’tl. Quality, Presentation to Interagency Environmental Class, University of North Carolina School of Law (Oct. 27, 2010) (on file with the North

ACF litigation provides an example. While Florida and Alabama did not object to the small allocations of water for Atlanta that the Corps initiated shortly after the opening of Buford Dam, their disagreement with the practice rose to the level of litigation by 1990.⁸⁸ Nevertheless, the Corps remained steadfast in its desire to continue storing water behind the Buford Dam for municipal water supply.⁸⁹ Though Atlanta was one of the fastest growing cities in the United States and needed water, other demands were also surging. The situation illustrates the agency's reluctance to change course voluntarily in the ACF basin.

2. Static Balancing of Uses

The Corps sometimes seeks to appease multiple interest groups by continuing all existing uses rather than rebalancing beneficial uses. The most blatant example of this comes from the ACF litigation, where the Corps agreed to provide water supply to Atlanta when it was not an authorized use of the Lake Lanier Reservoir.⁹⁰ The Corps continued this illegitimate allocation even after water storage contracts expired in 1990.⁹¹ In another example, the Corps failed for over fourteen years to revise the master manual for water releases from the Missouri River due to "disputes among various stakeholders."⁹² Rather than denying an interested party, the Corps gave a little to everyone. Further, the Corps preferred existing uses when, during an ongoing drought, it used water from the ACF system for a handful of barges despite indications that there would be insufficient water for other uses.⁹³ In a similar instance, the Corps maintained a nine-foot deep channel from Sioux City to St. Louis along the Missouri River for the benefit of barge navigation, despite a steady decline in barge traffic for thirty-four years.⁹⁴

Carolina Law Review). The most surprising finding of the committee may be that the Corps' own estimate of surplus water, unchanged since 1958, may be off by over three hundred percent. *Id.* Without the investigation of the ad hoc committee, this would never have come to light.

88. *Se. Fed. Power Customers, Inc. v. Geren*, 514 F.3d 1316, 1327 (D.C. Cir. 2008) ("Even after Florida and Alabama initiated litigation in 1990, the states entered into two agreements that allowed the Corps to increase water withdrawals . . . while settlement negotiations were pending.").

89. *See In re Tri-State Water Rights Litig.*, 639 F. Supp. 2d 1308, 1335 (M.D. Fla. 2009) (describing the original litigation filed by the State of Alabama against the Corps as well as subsequent negotiations).

90. *Id.* at 1319–21.

91. *Id.*

92. *Congress Urged to Reverse Missouri River Decline*, *supra* note 78.

93. Charles Seabrook, *Power Plants May Run Dry if Lakes Can't Float Barge*, ATLANTA J. CONST., Dec. 10, 2000, at C1.

94. *Congress Urged to Reverse Missouri River Decline*, *supra* note 78.

The Corps also seems to treat hydropower contracts as significant limitations on its authority, though supplying hydroelectric power does not automatically demand priority over other authorized uses.⁹⁵ While the Corps' agreements with power producers may have clauses for low-flow contingencies, in certain circumstances the Corps has avoided invoking these clauses.⁹⁶ For example, in 2010, the North Carolina Nature Conservancy, the Roanoke River Basin Alliance, and the National Wildlife Service pushed the Wilmington District of the Corps to increase water flow 15,000 cubic feet per second in order to relieve flooded bottom-lands surrounding Kerr Lake. The request was denied, due, at least in part, to the financial impact on power companies.⁹⁷

C. *Explaining the Corps' Resistance to Change*

The Corps tends to favor existing and particular users when faced with water allocation decisions. Though the legal requirements for managing water projects recognize and mandate multiple uses and flexibility, historically the relative needs and interplay of these uses has been static due to large amounts of available water. Management plans were typically constructed to serve the "narrow objectives of [barge] navigation . . . hydroelectric power generation, and water diversions for agriculture, irrigation, industries, and municipalities."⁹⁸ And once these plans were established, they did not change.⁹⁹ As Professor John Leshy has noted, the Corps is prodigious and, like other mammoth institutions, "has a lot of inertia and does not readily admit change."¹⁰⁰

Even if the Corps wished to recognize dynamic change and the need to adjust plans accordingly, resources constrain the agency. "[B]udget and manpower constraints" lead management to consider modification of water control plans ("WCPs") a low priority.¹⁰¹ This also means that the Corps'

95. See WHISNANT ET AL., *supra* note 48, at 50 (stating that "hydropower generation is also the most economically robust component of Kerr Dam's operation," making its continuation at Kerr Dam a priority).

96. *See id.* at 63–65.

97. *Latest News*, ROANOKE RIVER BASIN ASS'N, <http://www.rba.org/#newsArchive> (last visited Apr. 29, 2011) (citing regulatory limits, "power company costs," and red tape as reasons for the denial); *see also* WHISNANT ET AL., *supra* note 48, at 63–65 (discussing the Kerr Dam water release scheduling as determined by seasonal energy needs).

98. Leshy, *supra* note 9, at 142.

99. Legislation has of course added new interests, in particular, environmental interests. But aside from legislatively-mandated changes, actual alteration of uses has been extremely rare. *See, e.g.*, 33 U.S.C. § 2316(a) (2006) (identifying environmental protection as a mission of the Corps).

100. Leshy, *supra* note 9, at 139.

101. U.S. ARMY CORPS OF ENG'RS, *supra* note 79, at 3-22; *see also* Paul Quinian, *Army Corps: Conflicting Demands, Shrinking Budgets Create Unsustainable Mission*, GREENWIRE (Mar. 25, 2011) ("[T]he Corps is being asked to tackle a growing list of complicated problems for

ability to adapt to a changing, dynamic environment is hampered by a lack of information necessary for wise management practices.¹⁰² Finally, because there has been no real history of how water systems may or should change, the Army Corps generally lacks a thorough understanding of the legal authority within which water plan developers and dam operators can exercise authority.

Because the Corps was able to operate so many water projects without conflict for such long periods, agency behavior easily became entrenched. Historically, policy decisions about balancing water uses only had to be made once; they could be made at the highest levels while leaving the operators of the systems free to simply implement these directions.¹⁰³ Thus, water systems have come to be managed by massive manuals that bring together legal requirements, prior actions, and directions for ongoing operation without differentiating between levels of authority and activities continued solely because of past practices.¹⁰⁴ There is no administrative protocol for revisiting these manuals at policymaking levels.¹⁰⁵

Where conflict does occur that requires higher-level policy changes, it is easiest to address the most vocal and intense interests. The electric and barge transportation cases illustrate the influence of focused private interests that have a financial stake in the allocation of water, while the allocation for public water supply in Atlanta represents concentrated political pressure on the Corps. Public choice theory predicts that these more intense, concentrated interests would wield more power over government decision making than diffuse public water supply interests, such as environmental or recreational flows.¹⁰⁶

managing water resources problems with a shrinking budget.”) (on file with the North Carolina Law Review).

102. Leshy, *supra* note 9, at 143.

103. *See id.* at 151.

104. *See, e.g., Water Control Plan for John H. Kerr Dam and Reservoir*, U.S. ARMY CORPS OF ENGINEERS: WILMINGTON DIST., §§ C–G (Oct. 1995), <http://epcc.saw.usace.army.mil/KERRWCP.TXT> (detailing the regulations, operational plan, and management structure for Kerr Dam).

105. At the operational level, it would be difficult to diverge from these management manuals even if legal requirements would call for changing allocations. Most day-to-day decisions are not made by policy and legal personnel, and expecting the engineers that do operate these dams to make decisions not specifically authorized or recognized in the manuals is not realistic.

106. Jennifer J. Johnson, *Private Placements: A Regulatory Black Hole*, 35 DEL. J. CORP. L. 151, 185 (2010) (“Public choice theory predicts that organized groups will bid for legislative outcomes that further their own self-interest and that rational legislators will reward the highest bidders with desired legislation.”); *see also* Daniel A. Farber & Philip P. Frickey, *The Jurisprudence of Public Choice*, 65 TEX. L. REV. 873, 873–901 (1987) (providing a discussion of the effect of economic pressures on public choice); Jonathan R. Macey, *Promoting Public-Regarding Legislation Through Statutory Interpretation: An Interest Group Model*, 86 COLUM. L. REV. 223, 227–33 (1986) (detailing the economic and interest group theories of legislation).

The decentralized organizational structure of the Corps also plays a role in its approach to water management. The Corps has over thirty district headquarters, which is desirable in the interest of balancing multiple uses that vary in different parts of the country.¹⁰⁷ But by concentrating authority at the local level, the Corps is less likely to initiate policy changes at the top.

For many of these reasons, the Corps has had a limited view of its ability to make large changes to water management plans over time. Hence, it has been reactive in its responses, with major changes forced by court decisions and congressional actions rather than derived from leadership's thoughtful reconsideration of interests.¹⁰⁸ Though various laws require the Corps to maximize benefits through a water usage mix, entrenched interests and political pressures work against considered and voluntary changes. This is a particularly inefficient way to adjust and balance competing demands and, as noted in the Introduction, potentially an impossible way given the increasing demographic and environmental pressures. For this to change, the Corps and its constituencies need a fresh look at the legal constraints and requirements that govern the agency's decision making.

III. A FRESH LOOK AT THE CORPS' LEGAL AUTHORITY AND LIMITATIONS

This Part identifies an array of legal authorities that tend to affect the operation of dams managed by the Army Corps. Not all identified legal requirements will affect the operation of every dam managed by the Corps, as water resources projects often are subject to project-specific statutes and regulations. Some of these requirements are more appropriately viewed as policy or custom that guide operations of the Corps. Moreover, not all legal requirements are created equally. Federal statutes governing operation of a dam project must be consistent with the U.S. Constitution,¹⁰⁹ while agency regulations must be consistent with authorizing statutes.¹¹⁰ Procedures, policies, and contracts may create expectations, but in the case of actions by federal agencies such as the Corps, these must not conflict with valid

Indeed, the motives of administrators become the primary indicator of how socially beneficial the promulgated regulation will be. See M. Elizabeth McGill, *Temporary Accidents*, 106 MICH. L. REV. 1021, 1037 (2008).

107. See *Locations*, U.S. ARMY CORPS OF ENG'RS, <http://www.usace.army.mil/about/Pages/Locations.aspx> (last visited Apr. 29, 2011).

108. See, e.g., Abrams, *supra* note 10, at 415–19 (discussing the Corps' management of the Buford Dam and its effects on Atlanta's water supply).

109. U.S. CONST. art. VI, cl. 2 ("This Constitution, and the Laws of the United States which shall be made in Pursuance thereof . . . shall be the supreme Law of the Land.") (emphasis added).

110. PETER L. STRAUSS ET AL., *GELLHORN AND BYSE'S ADMINISTRATIVE LAW: CASES AND COMMENTS* 11 (10th ed. 2003).

regulations, statutes, and the Constitution.¹¹¹ In other words, the Corps' authority exists within a multi-layered, hierarchical web of possible legal requirements—moving down the scale from the Constitution, to statute, to rule, to contract, to guidance—that operate at the federal level and conceivably at multiple state and local levels.¹¹²

The force and applicability of these legal constraints vary tremendously. Ultimately, it is impossible to present a complete encyclopedia of possible legal constraints without knowing what particular action is being considered. Accordingly, this Article discusses the most general and important legal requirements for water management by the Corps. It also considers differentiation between legally required practices and those that may be preferable for certain purposes but are not legally required (or at least not always required).

The following analysis of the legal requirements applicable to the operation of dams and surface impoundments by the Corps proceeds from the top of the legal hierarchy downward in the following order: (1) requirements and constraints deriving from federal constitutional or statutory sources; (2) requirements and constraints deriving from federal rules, regulations, and other agency pronouncements; and (3) other legal arrangements related to the operation of water resource systems, whether they are legally binding requirements or not.

A. *Federal Constitutional and Statutory Constraints*

Decisions made by the Corps pertaining to water management of a dam project must comport with that project's primary purposes as provided by Congress. These primary purposes derive from three basic categories, which are discussed below: (1) laws initially authorizing construction of the project,¹¹³ (2) laws specific to the project passed subsequent to its construction, and (3) laws that apply generally to all Corps reservoirs.

111. *Id.* While breach of contract may have some financial impacts and is a legal issue of concern, contracts or other agreements do not govern the required actions of the Corps in the same manner as statutes and rules. It is not "illegal" to break a contract; breach of contract creates civil liability for the breaching party and an expectation of compensation or other remedy from the contract beneficiaries. See MARTIN A. FREY & PHYLLIS H. FREY, *ESSENTIALS OF CONTRACT LAW* 252–69 (2001) (discussing the range of remedies available to a plaintiff in a breach of contract suit).

112. Most water laws are state laws but many are federal. Normally these two are in sync, but "when the laws conflict, the scope and strength of the rights to use the water become much less certain." Leshy, *supra* note 9, at 139.

113. Interestingly, the Fort Peck Dam (the first big dam across the main-stem Missouri River) was authorized not by Congress, but administratively by President Franklin D. Roosevelt. JOHN R. FERRELL, *U.S. ARMY CORPS OF ENG'RS, BIG DAM ERA* 5 (1993). Acting on the authority of the National Industrial Recovery Act of 1933, President Roosevelt ordered construction of the dam "to increase[] employment quickly" and support navigation. *Id.* at 5–6. *But see* John R.

Project-specific authorizations (categories one and two above) are found in a variety of statutes but most commonly in a series of River, Harbor, and Flood Control Acts passed by Congress since 1870.¹¹⁴ Recent project authorizations have been contained in a series of Water Resources Development Acts.¹¹⁵ “[T]he purposes of a reservoir [or dam often] are not identified directly in the authorizing law, but instead are contained in reports of the Secretary of the Army, Chief of Engineer Board of Engineers for Rivers and Harbors, or others referred [to] in the [authorizing] law.”¹¹⁶

1. Initial and Subsequent Authorization

The initial authorization for dams to be managed by the Corps usually comes from congressional action. Early authorizations typically listed navigation, hydroelectric generation, and flood control as primary purposes. In the case of the John H. Kerr Dam, the Flood Control Act of 1944 originally authorized the project “for flood control and other purposes recommended by the Chief of Engineers in House Document Numbered 650,”¹¹⁷ which listed navigation and hydropower as other original purposes.¹¹⁸ The 1944 Act also authorized the development of a series of dams and reservoirs in the Missouri River basin that primarily addressed

Seeronen, *Judicial Challenges to Missouri River Mainstem Regulation*, 16 MO. ENVTL. L. & POL’Y REV. 59, 62 (2009) (claiming the Fort Peck Dam was authorized in the Rivers and Harbors Act of 1935).

114. See generally Act of Oct. 17, 1940, Pub. L. No. 76-868, 54 Stat. 1198 (codified in scattered sections of 33, 37 & 46 U.S.C.) (authorizing the construction, repair, and preservation of certain public works on rivers and harbors); Act of June 20, 1938, Pub. L. No. 75-685, 52 Stat. 802 (codified in scattered sections of 33 U.S.C.) (authorizing the construction, repair, and preservation of certain public works on rivers and for other purposes); Flood Control Act of 1938, Pub. L. No. 75-761, 52 Stat. 1215 (codified as amended in scattered sections of 33 U.S.C.) (granting the power to the War Department to make improvements to the rivers for flood control).

115. See, e.g., Water Resources Development Act of 2000, Pub. L. No. 106-541, § 101, 114 Stat. 2572, 2576 (codified at 33 U.S.C. § 2201 note (2006)) (enacting legislation designed to promote conservation and development of numerous rivers and harbors).

116. ROOS-COLLINS & GANTENBEIN, *supra* note 79, at 12.

117. Flood Control Act of 1944, Pub. L. No. 78-534, § 10, 58 Stat. 887, 894 (codified as amended at 33 U.S.C. § 701-1 (2006)) (authorizing and funding the creation and modification of a host of water resources projects). This is similar to many other enabling acts for Corps projects in that it spells out a multiple-use paradigm, whereby the Corps is to manage the project for multiple uses and to give effect to all of these uses.

118. H.R. DOC. NO. 78-650, at 9 (1944).

The term ‘original purposes’ . . . refers to those purposes found in the statute originally authorizing [the] project . . . [The term] ‘[o]ther [project] specific purposes’ refers to other purposes added by statutory amendment for that same project. ‘General purposes,’ means those purposes applicable to all federal facilities, including Corps projects, under general laws such as the Clean Water Act. ‘Project purposes’ refers collectively to all such authorized purposes for a given project.

ROOS-COLLINS & GANTENBEIN, *supra* note 79, at 12.

the need for flood control, navigation, irrigation, and power.¹¹⁹ Similarly, Congress authorized construction of the Buford Dam on Georgia's Lake Lanier with the primary purposes of navigation, power, and flood control.¹²⁰

In recent decades, authorizing statutes for dams have tended to include the additional purposes of recreation, water supply, water quality, and environmental amenities. The Corps' engineering manual recognizes this trend, stating "water management goals now include environmental and social aspects of project regulation, [such as] certain aspects of environmental, fish and wildlife, and recreational use"¹²¹ The dam at B. Everett Jordan Lake in Apex, North Carolina, for example, was authorized in 1963 for the purposes of recreation, water supply, flood control, fish and wildlife, and water quality.¹²² On a larger scale, the WRDA of 1986 provided for construction or modification of dozens of water projects intended to protect coastal environmental concerns (turtle nesting, coral reefs, sea grass¹²³) and downstream recreation and fisheries.¹²⁴ This was in addition to promoting the traditional purposes of flood control and navigation.¹²⁵ Similarly, the WRDA of 1990 supported water resources projects for storm water reduction and recreation as well as navigation and flood control.¹²⁶

After an initial authorization, Congress often uses subsequent acts to amend the authorization in response to changed circumstances. As illustrated in the WRDAs of 1986 and 1990, subsequent acts may

119. § 10, 58 Stat. at 897–98; FERRELL, *supra* note 113, at 63–68.

120. *In re Tri-State Water Rights Litig.*, 639 F. Supp. 2d 1308, 1345–46 (M.D. Fla. 2009) (holding that these, and not water supply to Atlanta, were the primary and authorized purposes of the dam project).

121. U.S. ARMY CORPS OF ENG'RS, *supra* note 79, at 3-9.

122. Act of Dec. 30, 1963, Pub. L. No. 88-253, § 1, 77 Stat. 840, 840–41 (codified at 16 U.S.C. § 1009 note (2006)); *B. Everett Jordan Project*, U.S. ARMY CORPS OF ENG'RS: WILMINGTON DIST., <http://epec.saw.usace.army.mil/bejdesc.txt> (last visited Apr. 29, 2011). Interestingly, the 1992 WCM for Jordan Lake articulates the principal purposes in greater detail by requiring the regulation plan to consider mosquito control and fish propagation. *Excerpts from the Approved 1992 Water Control Manual for B. Everett Jordan Project*, U.S. ARMY CORPS OF ENG'RS: WILMINGTON DIST., § 7-01, <http://epec.saw.usace.army.mil/jwcplan.txt> (last visited Apr. 29, 2011). In addition, though the primary purpose of the project is to control flooding of the Cape Fear River (and thus Fayetteville, North Carolina), over two-thirds of the water in the conservation pool is dedicated to water quality. *Id.*

123. Water Resources Development Act of 1986, Pub. L. No. 99-662, § 501, 100 Stat. 4082, 4133–37 (codified as amended at 33 U.S.C. § 2201 (2006) and in scattered sections of 26 U.S.C.).

124. § 601, 100 Stat. at 4141.

125. §§ 301, 401, 100 Stat. at 4109, 4111 (authorizing work for the purpose of navigation and flood control, respectively).

126. Water Resources Development Act of 1990, Pub. L. No. 101-640, § 101, 104 Stat. 4604, 4605–11 (codified as amended at 33 U.S.C. § 2201 note (2006)) (describing numerous projects throughout the country covering a variety of purposes).

appropriate additional funds to continue¹²⁷ or expand¹²⁸ the ability of the Corps to fulfill a project's original purposes. Moreover, subsequent acts may authorize new purposes for a project.¹²⁹ In the case of the Tuttle Creek Dam in Kansas, the original intention of the project was to provide flood control, but the dam later became important for mitigating low water-flow as well.¹³⁰ Similarly, the Francis E. Walter Dam in northeastern Pennsylvania was originally authorized for flood control before Congress broadened its mission in 1988 to include recreation.¹³¹ In yet another example, the Water Supply Act ("WSA") of 1958 added water supply to the primary purposes of the Kerr Dam.¹³²

2. Laws of General Applicability to All Dams and Reservoirs

Beyond initial and subsequent authorizations for specific water projects, other laws impose legal mandates on all dams and reservoirs under the Corps' jurisdiction. These are not easy, and perhaps not possible, to reconcile with engineering-like logic and precision, but they constitute a network of requirements that water management projects must comply with. The following discussion of the primary statutes that generally apply to Army Corps dams highlights the scope of the Corps' authority to make water management decisions.

127. § 101, 104 Stat. at 4605–11; § 301, 100 Stat. at 4109–10 (providing for improvements to, and an additional lock near, the Winfield Locks and Dam in West Virginia "for the benefit of navigation").

128. § 101, 104 Stat. at 4605–11; § 301, 100 Stat. at 4109–10. Another function of subsequent water-resource-related acts is to appropriate funding needed to complete a project. *See, e.g., The Fifth Decade of the Kansas City District*, U.S. ARMY CORPS OF ENG'RS: KAN. CITY DIST., 3, [http://www.nwk.usace.army.mil/pa/history/history-1948-1957 .pdf](http://www.nwk.usace.army.mil/pa/history/history-1948-1957.pdf) (last visited May 2, 2011) (discussing how the Tuttle Creek Dam and Reservoir in Kansas took close to a decade to construct due to intermittent funding by Congress).

129. § 301, 100 Stat. at 4109–10 (authorizing new projects for navigation purposes for existing dams).

130. *The Fifth Decade of the Kansas City District*, *supra* note 128.

131. Water Resources Development Act of 1988, Pub. L. No. 100-676, § 6, 102 Stat. 4012, 4022 (codified at 33 U.S.C. § 2201 note (2006)) (authorizing the enhanced purpose of recreation for the dam); *Raymond Proffitt Found. v. U.S. Army Corps of Eng'rs*, 343 F.3d 199, 201 (3d Cir. 2003) (discussing the original purpose of the dam as being flood control).

132. Water Supply Act of 1958, Pub. L. No. 85-500, § 101, 72 Stat. 297, 297 (improving rivers and waterways for "navigation, flood control and other purposes"); *see also John H. Kerr Project*, U.S. ARMY CORPS OF ENG'RS: WILMINGTON DIST., <http://epec.saw.usace.army.mil/kerrdesc.txt> (last visited Apr. 29, 2011) (discussing the history and purposes of Kerr Lake). As additional examples, the governor of South Dakota recently signaled to the Army Corps his desire for it to recommend to Congress that fishing and recreation be given higher priority on the Missouri River. *Governor Says Study Could Change River Management*, *supra* note 49. Congress also added hydroelectric power to the authorized purposes initially provided for the Fort Peck Dam in Montana. Act of May 18, 1938, Pub. L. No. 75-529, § 1, 52 Stat. 403, 403–04 (codified at 43 U.S.C. § 373a (2006)) (supplementing the original authorized uses of navigation and flood control).

The WSA of 1958 requires congressional approval for a major allocation change to a previously authorized project that stores water.¹³³ Section 301 of the Act, which requires congressional approval of modifications to a reservoir project that “would seriously affect the purposes for which the project was authorized,”¹³⁴ has not been the subject of much litigation. However, the U.S. Court of Appeals for the District of Columbia Circuit recently held that—at least in the case of Lake Lanier—a reallocation of twenty-two percent of storage space (or a nine percent reallocation of water by volume originally allocated to water supply, over a twenty-year period) was “major,” requiring congressional authorization.¹³⁵ The repercussions of a major water diversion absent a subsequent authorizing act can be severe. For example, in July 2009, a federal district court judge in Florida ordered Lake Lanier water withdrawals for the Atlanta region’s water supply to revert to levels last seen in the 1970s by 2012, unless Congress intervenes.¹³⁶ These cases do not indicate what limits are placed on changes that benefit one authorized purpose at the expense of another, but they do indicate the courts’ unwillingness to give the Corps unlimited discretion to make operational changes at its dams.

The Water Resources Planning Act passed in 1965¹³⁷ and amended in 1983,¹³⁸ requires the Corps (among other federal water agencies) to try to quantify costs and benefits and apply these efficiencies to its decisions.¹³⁹ The Water Resource Development Act of 2007 and many prior water resource development acts have attempted to increase the Corps’

133. Section 301 of the WSA of 1958 provides as follows:

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

§ 301, 72 Stat. at 319–20 (codified at 43 U.S.C. § 390b(d) (2006)).

134. *Id.*

135. *See* *Se. Fed. Power Customers, Inc. v. Geren*, 514 F.3d 1316, 1324 (D.C. Cir. 2008). The court also held that the Corps cannot avoid triggering the congressional authorization requirement for a major operational change by reallocating water storage in small incremental steps over time or by calling the reallocation temporary. *Id.* at 1324–25.

136. *In re Tri-State Water Rights Litig.*, 639 F. Supp. 2d 1308, 1355 (M.D. Fla. 2009). The order came in response to a finding that water supply was not an authorized purpose of Lake Lanier and reallocations of storage to water supply after Lake Lanier’s construction were significant. *Id.* at 1347.

137. Water Resources Planning Act of 1965, Pub. L. No. 89-80, 79 Stat. 245 (codified at 42 U.S.C. §§ 1962a–1962a-4 (2006)).

138. Act of Jan. 12, 1983, Pub. L. No. 97-449, 96 Stat. 2413 (codified at 42 U.S.C. § 1962a-2 (2006)).

139. 42 U.S.C. § 1962a-2(b) (2006).

consideration of environmental concerns in its water management and planning.¹⁴⁰ The 2007 Act instructs a revision of the principles and guidelines¹⁴¹ used by the Corps “in the formulation, evaluation, and implementation of water resources projects.”¹⁴² The Act required the Corps to consider, among other things, noneconomic factors, such as public safety, interests of low-income communities, interaction with other water resources projects, and other public benefits.¹⁴³ In response, the Council on Environmental Quality (“CEQ”)¹⁴⁴ proposed regulations to implement this instruction by the WRDA of 2007 on December 3, 2009.¹⁴⁵ These proposed guidelines were open to public comment and are subject to review by the National Academy of Sciences.¹⁴⁶ They have not been finalized as of this publication.

The environmental purpose language in the WRDA of 1990 provides that “[t]he Secretary shall include environmental protection as one of the *primary missions* of the Corps of Engineers in planning, designing, constructing, operating, and maintaining water resources projects.”¹⁴⁷ In the same section, however, the Act limits this broad environmental mandate, stating the Corps’ existing “authorities,” including navigation and flood control, shall not be affected.¹⁴⁸ Thus, while environmental protection might be considered a primary purpose allowing the Corps to make water

140. See generally Water Resources Development Act of 2007, Pub. L. No. 110-114, 121 Stat. 1041 (codified as amended at 33 U.S.C. § 2309a (Supp. I 2007)).

141. These principles and guidelines are contained in the March 10, 1983, document entitled *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*, which was prepared by the Water Resources Council pursuant to section 103 of the Water Resources Planning Act. U.S. WATER RESEARCH COUNCIL, ECONOMIC AND ENVIRONMENTAL PRINCIPLES AND GUIDELINES FOR WATER AND RELATED LAND RESOURCES IMPLEMENTATION STUDIES 1 (1983), available at http://www.usace.army.mil/CECW/Documents/pgr/pg_1983.pdf.

142. 42 U.S.C. § 1962-3(b)(2) (2006); see U.S. WATER RESEARCH COUNCIL, *supra* note 141, at 1 (“These Guidelines establish standards and procedures for use by federal agencies in formulating and evaluating alternative plans for . . . implementation studies.”).

143. § 1962-3.

144. “The Council on Environmental Quality . . . coordinates Federal environmental efforts and works closely with agencies and other White House offices in the development of environmental policies and initiatives The Council’s Chair . . . serves as the principal environmental policy adviser to the President.” *The Council on Environmental Quality*, THE WHITE HOUSE, <http://www.whitehouse.gov/administration/eop/ceq/about> (last visited Apr. 29, 2011).

145. See generally Press Release, White House Council on Env’tl. Quality, Proposed National Objectives, Principles and Standards for Water and Related Resources Implementation Studies Planning (Dec. 3, 2009), available at <http://www.whitehouse.gov/sites/default/files/microsites/091203-ceq-revised-principles-guidelines-water-resources.pdf> (providing “national objectives, principles, and standards” for implementing the instruction).

146. *Id.* at 9.

147. 33 U.S.C. § 2316 (2006) (emphasis added).

148. § 2316(b)(1).

reallocations, the extent of reallocation seems limited by navigation and flood control interests, suggesting that these uses must at least remain viable.

Interpreting the WRDA of 1990, the U.S. Court of Appeals for the Third Circuit, in *Raymond Proffitt Foundation v. U.S. Army Corps of Engineers*,¹⁴⁹ determined the “primary mission” of environmental protection to be an affirmative duty.¹⁵⁰ However, in that case, the court indicated that the Corps should be afforded discretion by a reviewing court when it comes to defining “environmental protection” and deciding how much environmental protection is appropriate at a particular water resources project.¹⁵¹ The Third Circuit used the term “vast discretion” referring to the Corps’ ability to decide whether to maximize environmental protection by altering the natural water flow at a site.¹⁵² A broader reading of the court’s opinion would give “vast discretion” to any water flow decision by the Corps—whether it decides to increase or decrease environmental protection, or alter to maintain natural water flow.¹⁵³ In *Proffitt*, the court went on to discuss, without concluding, whether this requirement may be project-specific, that is, that the Corps must affirmatively consider it in individual water resources projects.¹⁵⁴

Other statutes permitting environmental considerations include 33 U.S.C. § 2309a, which allows the Corps to undertake an analysis of any water resources project to determine whether the quality of the environment can be improved.¹⁵⁵ It further authorizes the Corps to then make changes in order to enhance and restore the environment from the harm that was caused by the project purpose, so long as such enhancements are “feasible and consistent with the authorized project purposes.”¹⁵⁶ Section 2313a(a) allows the Corps to undertake studies, surveys, and other

149. 343 F.3d 199 (3d Cir. 2003).

150. *Id.* at 206–07 (“The statute requires the consideration of environmental protection when ‘operating, and maintaining water resources projects.’ The Corps admits as much in its brief, stating that the ‘sole “command” identified by *Proffitt* under this criterion is Section 306 itself.’”) (internal citations omitted). The Third Circuit also concluded that “how the Corps implements this environmental protection mission appears to be left to the broad discretion of the Corps. There is, however, no discretion granted to the Corps on the issue of whether or not USACE is supposed to include environmental protection as a mission.” *Id.* at 207.

151. *Id.* at 210.

152. *Id.* at 212.

153. See discussion *infra* Part III.B.

154. *Proffitt*, 343 F.3d. at 211.

155. 33 U.S.C. § 2309a(a) (2006 & Supp. II 2008) (“The Secretary is authorized to review water resources projects constructed by the Secretary to determine the need for modifications in the structures and operations of such projects for the purpose of improving the quality of the environment in the public interest and to determine if the operation of such projects has contributed to the degradation of the quality of the environment.”).

156. § 2309a(b).

information gathering tools in preparation of reports that could improve environmental problems of national significance.¹⁵⁷

Environmental considerations also were made primary for water resource planning purposes under section 2281.¹⁵⁸ With respect to wildlife, section 2283 requires the Corps to prepare a plan to mitigate any harm to fish or wildlife potentially caused by any water “projects” or “project requests” after 1986.¹⁵⁹ But this section limits the ability of the Corps to use condemnation to acquire lands, “interests” thereon, or water purchases in order to implement fish and wildlife mitigation measures for projects completed before 1986.¹⁶⁰ Section 2283 has received scant interpretation. In a case involving the National Environmental Policy Act of 1969 (“NEPA”),¹⁶¹ the Corps asserted that section 2283 denied it authority to purchase land for easements for flooding land.¹⁶² The district court upheld the Corps in the challenge, but it did not rule on the Corps’ authority claim and proceeded in the analysis as if the Corps did have such authority.¹⁶³ If the Corps did lack the authority to purchase lands because of this statute, it could prevent the Corps from buying out a contract or condemning property interests in contracts such as those regarding electricity generation.

Despite these many mandates, courts have recognized the Corps’ broad discretion in planning, constructing, and operating federal water resources projects.¹⁶⁴ Of course, this discretion is not absolute.¹⁶⁵ In *South Dakota v. Ubbelohde*,¹⁶⁶ the U.S. Court of Appeals for the Eighth Circuit held that the Corps has great discretion in balancing between uses approved for a particular water project (in this case on the Missouri River), but that the Corps must have a public hearing before it undertakes something that will have a “significant” effect on project purposes at reservoirs.¹⁶⁷

In addition to the specific laws governing Corps activities noted above, the agency is subject to laws governing all federal agencies. The list of

157. 33 U.S.C. § 2313a(a) (2006).

158. 33 U.S.C. § 2281(a) (2006).

159. *Id.* § 2283(d).

160. § 2283(b). This could possibly be seen as a limitation on changes to existing contracts (i.e., acquisition by “breach”).

161. 42 U.S.C. §§ 4321–4370 (2006 & Supp. II 2008).

162. *Nat’l Wildlife Fed’n v. Westphal*, 116 F. Supp. 2d 49, 58 (D.D.C. 2000).

163. *See id.* at 55.

164. *See Nat’l Wildlife Fed’n v. Nat’l Marine Fisheries Serv.*, 422 F.3d 782, 798 (9th Cir. 2005) (“Deference to the informed discretion of the responsible federal agencies is especially important, where, as here, the agency’s decision involves a high level of technical expertise.” (quoting *Ranchers Cattleman Action Legal Fund v. U.S. Dep’t of Agric.*, 415 F.3d 1078, 1093 (9th Cir. 2005))); *South Dakota v. Ubbelohde*, 330 F.3d 1014, 1031–32 (8th Cir. 2003).

165. *Nat’l Wildlife Fed’n*, 422 F.3d at 798.

166. 330 F.3d 1014 (8th Cir. 2003).

167. *Id.* at 1030–31.

these laws is extensive,¹⁶⁸ and includes procedural requirements, such as the Administrative Procedure Act,¹⁶⁹ as well as specific substantive requirements such as the Native American Graves Protection and Repatriation Act.¹⁷⁰ Two of these laws, NEPA and the Endangered Species Act of 1973 (“ESA”),¹⁷¹ are of particular importance in limiting the Corps’ actions.

NEPA requires that federal agencies “use all practicable means and measures” to protect environmental values.¹⁷² Procedurally, all federal agencies must list the environmental impacts of any action that significantly affects the quality of the human environment.¹⁷³ NEPA does not require that agencies select the most environmentally friendly alternative when making a decision, nor does it require an agency to give that alternative effect when it would explicitly conflict with another directive of Congress.¹⁷⁴ However, the procedural steps generate information that can affect the ultimate decision of an agency. All federal agencies, including the Corps, have implemented NEPA through rules that specify NEPA procedural requirements particular to the agency.¹⁷⁵

Application of NEPA means that the Corps must determine the existence or extent of environmental impacts that may result from agency action. However, the Corps has developed a list of “categorical exclusions,” which identify categories of activities that the Corps believes do not create significant impacts on the quality of the human environment.¹⁷⁶ This designation itself does not relieve the Corps of NEPA’s obligations.¹⁷⁷ So even if the Corps lists a task as receiving a categorical exclusion, if there were significant impacts to the human environment, the Corps would violate NEPA by failing to consider them.¹⁷⁸ Without a categorical exclusion, the Corps would implement procedures to determine whether or not an environmental impact statement (“EIS”) is required.¹⁷⁹ These procedures may take the form of an environmental

168. *See generally* INST. FOR WATER RES., U.S. ARMY CORPS OF ENG’RS, IRW REPORT NO. 96-PS-3, CIVIL WORKS ENVIRONMENTAL DESK REFERENCE (2002), *available at* [http://www.usace.army.mil/CECW/PlanningCOP/Documents/library/EnvDesk Reference.pdf](http://www.usace.army.mil/CECW/PlanningCOP/Documents/library/EnvDesk%20Reference.pdf) (providing a summary of applicable federal regulations).

169. 5 U.S.C. §§ 551–559 (2006 & Supp. III 2009).

170. 25 U.S.C. §§ 3001–3013 (2006).

171. 16 U.S.C. §§ 1531–1544 (2006 & Supp. III 2009).

172. 42 U.S.C. § 4331 (2006).

173. 42 U.S.C. § 4332 (2006).

174. *See* § 4331; *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989).

175. *See, e.g.*, 33 C.F.R. § 230 (2010) (providing procedures for the Corps to implement NEPA).

176. *Id.*

177. CRAIG N. JOHNSTON ET AL., LEGAL PROTECTION OF THE ENVIRONMENT 110 (2010).

178. *Id.*

179. *Id.*

assessment (“EA”), a document designed to analyze whether or not significant environmental impacts exist, or a mitigated environmental assessment (“MEA”) where the agency determines that no EIS is required if mitigating actions take place.¹⁸⁰ If significant impacts will exist, the EIS requirement comes into play.¹⁸¹ Since it is not exempted from NEPA either explicitly or implicitly by statute, operational changes at a water resources project that require a public hearing trigger NEPA. Though the Corps may claim a categorical exclusion for some WCP alterations, it is arguable that in many cases, further NEPA procedure would be required.

The ESA prohibits all federal agencies from taking actions that would negatively impact a species listed as either threatened or endangered under the Act.¹⁸² In order to fully implement these substantive provisions, the ESA also requires agencies to take procedural steps to ascertain whether federal actions would have a negative impact.¹⁸³ These provisions also apply to so-called “candidate” species.¹⁸⁴ By its terms, the ESA generally supersedes other specific agency statutory requirements unless there is a specific exemption.¹⁸⁵ Thus, if an agency action were to affect a listed species, that action would be prohibited even if it were otherwise required by Congress.¹⁸⁶

Table 1 provides a quick reference to general laws often relevant to the Corps in operating water resources projects.

180. *See id.*

181. *Id.* at 110–11.

182. 16 U.S.C. § 1531 (2006).

183. *Id.*

184. *The Endangered Species Act and Candidate Species*, U.S. FISH & WILDLIFE SERV., http://library.fws.gov/Pubs9/esa_cand01.pdf (last visited Apr. 29, 2011) (“Candidate species receive no statutory protection under the ESA. However, the Service encourages the formation of partnerships to conserve these species because they are by definition species that may warrant future protection under the ESA.”).

185. *See* 16 U.S.C. § 1536 (2006); JOHNSTON ET AL., *supra* note 177, at 673–74.

186. For example, there is at least one federally listed endangered species—the short-nosed sturgeon (*Acipenser brevirostrum*)—and other formerly listed species which inhabit the lower Roanoke River. In such a case, the ESA prohibits the Corps from making water flow choices in regards to the Kerr Dam that would adversely affect these species or their habitats. Similarly, biological opinions from the U.S. Fish and Wildlife Service and National Marine Fisheries Service were triggered by the ESA and have led to restrictions in water flow (to the detriment of farmers) in order to protect salmon and delta smelt in the Sacramento-San Joaquin River Delta. *See* Colin Sullivan, *Sen. Feinstein Urges Outside Review of Calif. Water Restrictions*, N.Y. TIMES, Sept. 23, 2009, <http://www.nytimes.com/gwire/2009/09/23/23greenwire-sen-feinstein-demands-outside-review-of-calif-75517.html>.

Table 1: Federal Laws Operating on Army Corps Water Resources Projects

Flood Control Act of 1944 ¹⁸⁷	Allows the addition of recreation as an authorized purpose. ¹⁸⁸ Permits the Corps to allocate surplus water for domestic use. ¹⁸⁹
Water Supply Act of 1958 ¹⁹⁰	Requires congressional approval of a “major structural or operational change” and modifications that “seriously affect” authorized purposes. ¹⁹¹
Fish and Wildlife Coordination Act ¹⁹²	Allows project modifications for the conservation of fish and wildlife. ¹⁹³
Federal Water Pollution Act Amendments of 1972 (Clean Water Act) ¹⁹⁴	Sets the goal of restoring and maintaining the quality of the nation’s waters. ¹⁹⁵
Water Resources Development Act of 1990, Section 304 ¹⁹⁶	Allows the Corps to study any water resources project to identify areas for environmental improvement. ¹⁹⁷ Authorizes the Corps to enhance and restore the environment from harms caused by project purposes. ¹⁹⁸
Water Resources Development Act of 1990, Section 306 ¹⁹⁹	Identifies environmental protection as a “primary mission” of all Army Corps water resources projects. ²⁰⁰
Endangered Species Act ²⁰¹	Requires protection of threatened and endangered fish/wildlife. ²⁰²

187. Pub. L. No. 78-534, 58 Stat. 887 (codified in scattered sections of 16, 33 & 43 U.S.C.).

188. *See supra* notes 117–26 and accompanying text.

189. *See supra* note 64 and accompanying text.

190. Pub. L. No. 85-500, 72 Stat. 297 (codified as amended at 43 U.S.C. § 390b (2006)).

191. 43 U.S.C. § 290b (2006); *see also supra* note 134 and accompanying text.

192. Pub. L. No. 85-624, 72 Stat. 563 (1953) (codified as amended at 16 U.S.C. §§ 661–666c (2006)).

193. *See* § 2, 72 Stat. at 563–64.

194. Pub. L. No. 92-500, 86 Stat. 816 (codified as amended at 33 U.S.C. §§ 1251–1387 (2006)).

195. *See infra* note 261 and accompanying text.

196. Pub. L. No. 101-640, § 304, 104 Stat. 4604, 4634 (codified at 33 U.S.C. § 2309a (2006)).

197. *See* § 304, 104 Stat. at 4634.

198. *See id.*

199. Pub. L. No. 101-640, § 306, 104 Stat. 4604, 4635 (codified at 33 U.S.C. § 2316 (2006)).

200. 33 U.S.C. § 2316 (2006); *see also supra* note 147 and accompanying text.

201. Pub. L. No. 93-205, 87 Stat. 884 (codified at 16 U.S.C. §§ 1531–1544 (2006 & Supp. III 2009)).

202. *See supra* notes 182–86 and accompanying text.

National Environmental Policy Act ²⁰³	Provides a procedural process for all major federal actions to ensure that environmental considerations are considered. ²⁰⁴
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B. Agency Regulations and Rules

Multiple types of internal agency controls govern actions of the Corps, while the binding effect of these regulations varies depending upon the method of creation and the agency's intent at creation.²⁰⁵ Regulations resulting from informal rulemakings (which follow notice and comment proceedings²⁰⁶) and regulations promulgated from a formal notice and comment hearing²⁰⁷ are generally considered binding on an agency.²⁰⁸ They may have the force of precedent, requiring the agency to treat similarly situated parties the same. Accordingly, they cannot be ignored unless declared by a court to be invalid or the agency undergoes a similar procedure to alter the requirement.²⁰⁹ Even with valid procedures (usually notice through publication in the *Federal Register* with an opportunity to comment), a reversal of prior policy must not be arbitrary and capricious or an abuse of discretion.²¹⁰

The Corps may also issue guidance, interpretive rules, and other so-called informal clarifications of legal policy.²¹¹ While it is assumed that the agency will follow its own interpretations, such interpretations may be changed without a notice and comment period as long as the change is not arbitrary and capricious.²¹² In addition to rulemakings and informal clarifications, the Corps is subject to guidance from the CEQ,²¹³ notably in directing objectives for water planning.²¹⁴

203. Pub. L. No. 91-190, 83 Stat. 852 (codified at 42 U.S.C. §§ 4321–4370a (2006 & Supp. II 2008)).

204. See *supra* notes 172–75 and accompanying text.

205. STRAUSS ET AL., *supra* note 110, at 910 (citing *Atchison, Topeka & Santa Fe Ry. v. Wichita Bd. of Trade*, 412 U.S. 800, 808–09 (1973)).

206. 5 U.S.C. § 553 (2006).

207. 16 U.S.C. § 1531 (2006).

208. See *United States v. Mead Corp.*, 533 U.S. 218, 244 (2001).

209. *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins.*, 463 U.S. 29, 43 (1983).

210. 5 U.S.C. § 557 (2006).

211. STRAUSS ET AL., *supra* note 110, at 729–32.

212. *Mead*, 533 U.S. at 218.

213. See *supra* notes 144–45 and accompanying text.

214. See *supra* note 8. Any deference to the CEQ instruction on water planning is more tenuous still. The recent guidelines purport to implement the WRDA of 2007, but that Act directs implementation by the Corps, not the CEQ. 42 U.S.C.A. § 1962-3 (West Supp. 2010). As such, the CEQ's influence over the implementation of new guidelines by the Corps pursuant to the WRDA of 2007 section is unclear. Thus, how Corps operations might be affected by the proposed new guidelines undergoing comment is unknown. See *supra* notes 144–46 and accompanying

The standard of review for agency decision making is governed by the federal Administrative Procedure Act (“APA”).²¹⁵ According to the APA, an agency action is to be upheld by a federal court unless it is arbitrary and capricious, an abuse of discretion, or not in conformance with the law.²¹⁶ In determining whether an agency action is in conformance with law, the Supreme Court has set out a reviewing process that depends on the manner in which the agency implements its legal requirements (e.g., rulemaking, adjudication, guidance, interpretation). A comprehensive analysis of the legal complexities associated with standards of review of agency decisions is not the focus of this Article, but because the standard of review applied to Corps actions is so important to the Corps’ decision making, this section outlines the general parameters of agency review.

When Congress intends for an agency’s statutory interpretation to carry the force of law and the agency acts within that authority, that legal determination by an agency is subject to very deferential review known as *Chevron* deference.²¹⁷ Congress may express such an intention either expressly (by “ ‘explicitly [leaving] a gap for an agency [interpretation] to fill’ ”²¹⁸) or implicitly (“apparent from the agency’s generally conferred authority and other statutory circumstances”²¹⁹). In instances where Congress provides for a “relatively formal” administrative procedure, such as a notice and comment period, the Court considers Congress to intend for the agency’s interpretation to carry the force of law and thus receive *Chevron* deference.²²⁰ However, *Chevron* deference may be appropriate even when “no such administrative formality was required and none was afforded.”²²¹

In situations in which the agency provides a statutory interpretation that Congress did not intend to have the “force of law,” the interpretation receives a lesser deference—often referred to as *Skidmore* deference.²²² In such cases, the weight given by the reviewing court to the agency’s

text. But as with other prior guidelines and directions, it may be that as guidelines, rather than specific mandates, there will likely be little alteration of water resources plans.

215. Pub. L. No. 79-404, 60 Stat. 237 (1946) (codified as amended in scattered sections of 5 U.S.C.).

216. 5 U.S.C. § 706(2)(A) (2006).

217. *Mead*, 533 U.S. at 227–28; *Chevron U.S.A., Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837, 866 (1984). When *Chevron* deference applies, the reviewing court “is obliged” to defer to the agency’s interpretation if it is reasonable and Congress has not previously addressed the exact issue. *Mead*, 533 U.S. at 229.

218. *Mead*, 533 U.S. at 227 (quoting *Chevron*, 467 U.S. at 843–44).

219. *Id.* at 229.

220. *Id.* at 230.

221. *Id.* at 231.

222. *Id.* at 227–29. “*Skidmore* deference,” now sometimes referred to as “*Mead* deference,” refers to the deference that a reviewing court will give to an action of an agency based on its level of expertise and experience. *Id.* at 228.

judgment “depend[s] upon the thoroughness evident in its consideration, the validity of its reasoning, its consistency with earlier and later pronouncements, and all those factors which give it power to persuade.”²²³ In applying *Skidmore* deference, the reviewing court also recognizes judicial limits and tends to consider the “specialized experience” and “broader investigations” that agencies may employ when conducting statutory interpretations.²²⁴ Though the Court in *United States v. Mead Corp.*²²⁵ attempted to give some definite guidelines to review of agency legal interpretation, actual reviewing standards are still murky.²²⁶ The persuasive deference cited in *Mead* can vary greatly, and there has been some commentary that *Chevron* deference itself is being altered by the Supreme Court under Chief Justice Roberts.²²⁷

C. State Law

While state laws could affect the operation of the Corps, very few do. This is because the Corps’ area of operation is mandated by federal law, which is superior to state law under the Supremacy Clause.²²⁸ The state actions that do affect the Corps are themselves authorized by federal law. For instance, requirements under many state environmental and resource laws are derived from the state’s authority to implement federal law and policy. In particular, both the Clean Water Act and Clean Air Act require state implementations to ensure that “downstream environmental values” are not impacted by federal agency action.²²⁹ A state may also make agreements, memoranda of understanding, or memoranda of agreements to settle perceived conflict between Corps policy and environmental or wildlife policy administered by the state. These agreements cannot be inconsistent with the basic federal laws governing the Corps.

223. *Skidmore v. Swift*, 323 U.S. 134, 140 (1944). For an analysis of the three putative degrees of *Skidmore* deference, see generally Kristin E. Hickman & Matthew D. Krueger, *In Search of the Modern Skidmore Standard*, 107 COLUM. L. REV. 1235 (2007).

224. *Skidmore*, 323 U.S. at 139.

225. 533 U.S. 218 (2001).

226. See Ann Graham, *Searching for Chevron in Muddy Waters: The Roberts Court and Judicial Review of Agency Regulations*, 60 ADMIN. L. REV. 229, 235–38 (2008) (listing unanswered questions post-*Mead*).

227. See, e.g., *id.* at 271 (providing an analysis of eleven recent administrative law cases decided by the Roberts Court and concluding that “the classic *Chevron* analysis is dead”).

228. U.S. CONST. art. VI, cl. 2.

229. 33 U.S.C. § 1251 (2006); Clean Air Act, Pub. L. No. 88-206, § 7, 77 Stat. 392, 399 (1963).

The Supremacy Clause provides that federal laws, including the Constitution, statutes, and treaties, are the “supreme Law of the land.”²³⁰ Accordingly, “a state statute is void to the extent that it actually conflicts with a valid federal statute.”²³¹ If it is impossible to comply with both a federal and a state law or if a state law inhibits the application of a federal law, the federal law controls.²³² While simple in theory, the application of the Supremacy Clause is often complicated by the vast number of federal laws providing for parallel state regulation.²³³ For example, the “Wallop Amendment” of the Clean Water Act provides that “the authority of each State to allocate quantities of water shall not be superseded, abrogated or otherwise impaired.”²³⁴ Further, nothing “shall be construed to supersede or abrogate rights to quantities of water which have been established by any State.”²³⁵ However, the Army Corps’ nearly exclusive power over water storage in much of the country (by controlling the dams that create vast artificial reservoirs) means that it wields tremendous control over water resources. As one observer explained, it is not clear that “for all purposes, an analysis of federal-state relations in water will show a ‘consistent thread of purposeful and continued deference to state water law by Congress.’ A more apt characterization of the situation is that [water law] involves ‘a concoction of Byzantine politics and legalistic archaeology.’”²³⁶

Despite this general lack of authority, federal preemption of state water law is extensive in the context of power production. Though section 27 of the Federal Power Act appears to save state water laws from preemption,²³⁷ this provision has been interpreted narrowly. In *California v. Federal Energy Regulatory Commission*,²³⁸ the Supreme Court prohibited California from conditioning a Federal Energy Regulatory Commission (“FERC”) permit on its own determination of what instream flows were necessary for

230. U.S. CONST. art. VI, cl. 2. (“This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land . . .”).

231. *Edgar v. MITE Corp.*, 457 U.S. 624, 631 (1982).

232. *Id.*

233. See WHISNANT ET AL., *supra* note 48, at 23.

234. Clean Water Act of 1977, Pub. L. No. 95-217, § 5(a), 91 Stat. 1566, 1567 (codified as amended at 33 U.S.C. § 1251(g) (2006)).

235. *Id.*

236. AMY K. KELLEY, UNIV. COUNCIL ON WATER RES., FEDERAL PREEMPTION AND STATE WATER LAW 4, http://www.ucowr.org/updates/pdf/V105_A2.pdf (quoting B. Abbott Goldberg, *Interposition—Wild West Water Style*, 17 STAN. L. REV. 1, 36 (1964)).

237. 16 U.S.C. § 821 (2006) (“Nothing contained in this chapter shall be construed as affecting or intending to affect or in any way to interfere with the laws of the respective States relating to the control, appropriation, use, or distribution of water used in irrigation or for municipal or other uses, or any vested right acquired therein.”).

238. 495 U.S. 490 (1990).

the public interest.²³⁹ But in *Public Utility District (PUD) No. 1 of Jefferson County v. Washington Department of Ecology*,²⁴⁰ the Supreme Court expanded the state's power. The Court held that a state may impose minimum stream flow requirements for a hydroelectric facility as a condition for the state's certification of the project under section 401 of the Clean Water Act. This allows a state to condition any federal action upon it not impairing state water quality standards.²⁴¹

Thus, in practice, section 401 permits a state to block power projects that violate its water quality standards, even to the point of flow control. The power of states under section 401 can impact a variety of Corps projects, including construction of hydroelectric dams, construction projects, and wetlands fill. But states may not affect changes in dam operation if no new "discharge" occurs.²⁴² This is because a threshold consideration in determining whether section 401 applies to a particular Corps project is whether a "discharge" is present.²⁴³ Nevertheless, this is a procedural requirement that should be considered when undergoing a revision of any water resources plan.²⁴⁴

239. *Id.* at 491 (emphasis added) (striking down California's attempt to set minimum flow rates significantly higher than FERC-ordered rates); see also *First Iowa Hydro-Elec. Coop. v. Fed. Power Comm'n*, 328 U.S. 152, 170 (1946) (getting a state dam construction permit is not required to operate a FERC licensed dam).

240. 511 U.S. 700 (1994).

241. *Id.* at 723. Section 401 provides, in pertinent part:

Any applicant for a Federal License or permit to conduct any activity including, but not limited to the construction or operation of facilities, which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification form from the State in which the discharge originates or will originate, etc. . . . No license or permit shall be granted if certification has been denied by the State, interstate agency, or the Administrator, as the case may be.

Federal Water Pollution Control Act Amendments of 1972 § 401(a), 33 U.S.C. § 1341(a)(1) (2006).

242. In fact, section 401 appears to be the only legal authority by which states can subject the Army Corps to direct state policy control. Corps projects are not subject to local zoning authority.

243. In *S.D. Warren Co. v. Maine Board of Environmental Protection*, 547 U.S. 370 (2006), the Supreme Court unanimously held that "discharge," as used in section 401 of the Clean Water Act, does include water flowing out of a dam, irrespective of whether there are pollutants in or added to the water at the dam, *id.* at 373, even if a "pollutant" must be "added" to have a discharge under section 402. *Id.* at 380. *But see* *Friends of the Everglades v. S. Fla. Water Mgmt. Dist.*, 570 F.3d 1210, 1228 (11th Cir. 2009) (noting that because the language of the Clean Water Act is ambiguous, the EPA's adoption of a unitary water theory is reasonable).

244. See *Edward A. Fitzgerald, Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers: Isolated Waters, Migratory Birds, Statutory and Constitutional Interpretation*, 43 NAT. RESOURCES J. 11, 14 n.20 (2003) (citing *Solid Waste Agency of N. Cook Cnty. v. U.S. Army Corps of Eng'rs*, 531 U.S. 159 (2001)); see also *City of Shoreacres v. Tex. Comm'n on Env'tl. Quality*, 166 S.W.3d 825, 839 (Tex. App. 2005) (holding that the port was not required to obtain state authorization independent of the dredge-and-fill permit obtained from the Corps).

IV. PRESERVING FLEXIBILITY BY EXERCISING DISCRETIONARY AUTHORITY IN COMMON CORPS DECISIONS

As noted above, the Corps must comply with a host of requirements at the federal and state levels.²⁴⁵ To summarize, for each activity related to a water resources project, the Corps must act within the bounds of the initial authorization and any supplemental authorizations for that water resources project. In addition, the Corps must comply with those statutes generally applicable to all Corps water resources projects²⁴⁶ and those applicable to all agency actions.²⁴⁷ The Corps also must honor state-imposed limitations, which most often come in the form of conditions on a section 401 certification.²⁴⁸

Within these legal confines, however, the Corps is given wide latitude in exercising its discretion. As noted above, many statutory directives require the Corps to make judgment calls when balancing competing water uses.²⁴⁹ While the regulatory space within which the Corps may legally exercise its discretion depends in large part on the specific circumstances of the activity and project in question, the Corps performs certain actions on a regular basis. This Part identifies four such actions and, for each action, analyzes the scope of the Corps' discretion and how decisions by the Corps may fair upon judicial review.

A. *Alteration of Water Control Plans*²⁵⁰

The Army Corps has authority to make changes to WCPs under initial WSA of 1958 authorizations, and it may exercise its discretion in choosing among authorized uses as long as it follows procedural and substantive limitations. The WSA requires the Corps to adjust WCPs periodically in order to continually serve a water resources project's authorized purposes.²⁵¹ While this suggests that the Corps has an affirmative duty to continuously alter plans in the face of changed circumstances, this cannot be done instantaneously. Typically, a statute authorizing a water resources project also requires the Corps to create a WCP after an informal public notice and comment period.²⁵² Subsequently, any changes to a WCP—aside

245. See *supra* Part III.

246. See *supra* Part III.A.2.

247. See *supra* Part III.B.

248. See *supra* Part III.C.

249. See *supra* Part III.A.2.

250. For an explanation of a WCP and other terms, see *supra* note 79.

251. 43 U.S.C. § 390b (2006).

252. See, e.g., 33 U.S.C. § 2319 (2006) (“The Secretary shall issue regulations to implement this section, including a requirement that all appropriate informational materials relating to proposed management decisions of the Corps be made available to the public sufficiently in

from de minimis changes required for day-to-day operation under the operation plan²⁵³—require another public notice and comment period to permit stakeholders and the community to submit recommendations to the Corps on how it should adjust the plan.²⁵⁴ Likewise, any reduction in water storage requires public notice and comment.²⁵⁵

Regulations promulgated by the Corps further detail the relevant procedural requirements when changing a water control manual (“WCM”), which implements a WCP. In addition to calling for public meetings and involvement “as appropriate,” these Corps regulations list four relevant criteria when “developing or modifying water control manuals.”²⁵⁶ First, when a WCP is affected by the creation or change of a WCM, public involvement and public meetings are required.²⁵⁷ Second, no public meeting is required when revisions to a WCM are administrative or informational and do not change the WCP.²⁵⁸ Third, when the conditions described in point one exist, the Corps shall provide the public with relevant information at least thirty days in advance of the public meeting.²⁵⁹ Such information includes an explanation (including technical information) of the proposed change, the basis for the change, description of impacts, and comparison with alternatives. Also, the WCM may only be prepared after the required public involvement. Finally, the responsible division of the Corps will send the proposed manual to Corps headquarters for review and comment prior to approval by the division.²⁶⁰ After the comment period and satisfaction of any other procedural requirements outlined in statutes referencing the water resources project, the Corps can finalize the WCM.

The Clean Water Act also places some limitations on the Corps’ discretion in management practices of dams. For example, the WCM for J. Everett Jordan Lake requires compliance with the Clean Water Act in that the project must be “managed, operated, and maintained so as to protect

advance of public hearings.”). In some circumstances, however, WCPs are created outside the APA notice and comment period. Nevertheless, courts have found that they are binding on the Corps when it “purports to create a substantive requirement,” which can be indicated by mandatory language and specific directives in the WCP. *South Dakota v. Ubbelohde*, 330 F.3d 1014, 1028 (8th Cir. 2003).

253. See *infra* Part IV.B (discussing the Corps’ discretionary authority for changing operating plans).

254. § 2319 (“The Secretary shall ensure that, in developing or revising reservoir operating manuals of the Corps of Engineers, the Corps shall provide significant opportunities for public participation, including opportunities for public hearings.”).

255. 33 U.S.C. § 2312 (2006).

256. 33 C.F.R. § 222.5(g)(2)(i) (2010).

257. *Id.*

258. *Id.*

259. *Id.*

260. *Id.*

and enhance the quality of water and land resources through conformance with applicable federal, state, interstate, and local substantive standards.”²⁶¹ The Clean Water Act and the Clean Air Act themselves require that no federal agency interfere with water or air quality.²⁶²

Another statutory limitation on the Corps’ discretion to change WCPs comes from the APA, which requires that no agency action be “arbitrary [and] capricious” or “not in accordance with law.”²⁶³

Normally, an agency rule would be arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.²⁶⁴

Thus, if an agency (1) failed to consider an important aspect of the problem or (2) made a finding counter to the evidence, the decision would be overturned as arbitrary and capricious.²⁶⁵

As an illustration, suppose the Army Corps, in preparation of a WCP, determined a certain balance of water flow levels to be the optimal balance between authorized uses. In order to not be arbitrary and capricious, the Corps would need to show that it considered every “important” aspect of the issue, especially those concerns raised in comments.²⁶⁶ Failure to consider studies clearly documenting adverse impacts of the final flow level on navigation or flood control, for instance, may be grounds for reversal of the Corps’ decision.²⁶⁷ Note that such a finding is different than whether the final WCP *does* adversely impact an authorized use. The question in an arbitrary and capricious review is whether the Corps failed to *consider* an important aspect. At the same time, the Corps’ conclusion cannot run counter to the evidence presented, meaning that it must respond to key evidence.²⁶⁸ According to *Motor Vehicle Manufacturers Ass’n v. State Farm Mutual Automobile Insurance Co.*,²⁶⁹ the arbitrary and

261. *Excerpts from the Approved 1992 Water Control Manual for B. Everett Jordan Project*, *supra* note 122, § 7-05.

262. *See* 33 U.S.C. § 1251 (2006); Clean Air Act, Pub. L. No. 88-206, § 7, 77 Stat. 392, 399 (1963).

263. 5 U.S.C. § 706(2)(A) (2006).

264. *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

265. *Id.*

266. *Id.*

267. *Id.*

268. *Id.*

269. 463 U.S. 29 (1983).

capricious standard only requires the Corps to give an intelligible explanation of its decision, not a clearly persuasive one.²⁷⁰

A change to a water allocation plan might also be challenged under the APA as “not [acting] in accordance with law.” But since authorized uses are merely identified and not required in a certain amount, it might be difficult to pose this legal challenge. This is particularly true if the agency acts under its legal norm-creating responsibilities identified in the *Chevron* case.

Despite these modest limitations, various statutes authorize the Corps to act on its own initiative in order to make use and allocation changes to water resources projects in furtherance of environmental protection.²⁷¹ Under 33 U.S.C. § 2309(a), the Corps may address and correct environmental problems caused or exacerbated by original Corps projects.²⁷² The Corps may also act to enhance environmental, fish, and wildlife quality outside of 33 U.S.C. § 216, pursuant to its specific authorities to manage water for environmental and wildlife purposes.²⁷³ In such circumstances, these changes are subject to the public hearing requirements discussed above²⁷⁴ and must not “significantly” affect or alter project purposes.²⁷⁵ Moreover, the WRDA of 2007 requires the Corps to weigh environmental concerns alongside economic ones when considering new projects.²⁷⁶ While the Corps has not completed updating its twenty-six-year-old principles and guidelines, U.S. senators have called on the White House “to give clear directives to avoid adverse environmental impacts to the maximum extent possible [and to] ensure compliance.”²⁷⁷

B. *Judicial Review of Operational Decisions*

Compared with changes in water management plans, operational decisions are made much more frequently—ranging from yearly in Annual Operating Plans²⁷⁸ to daily decisions.²⁷⁹ These operating decisions may be

270. *Id.* at 43.

271. *See, e.g.*, 5 U.S.C. § 706(2)(A) (2006).

272. 33 U.S.C. § 2309(a) (2006 & Supp. II 2008).

273. *See* 16 U.S.C. § 662(c) (2006); 33 U.S.C. § 2316 (2006).

274. *See* 33 U.S.C. § 2312 (2006).

275. *Id.*

276. *See* 42 U.S.C. § 1962-3(a) (Supp. III 2009); Taryn Luntz, *Army Corps: Senators Press Obama Administration for Reform*, ENERGY & ENVTL. NEWS (Nov. 17, 2009), <http://www.eenewspm/2009/11/17/5/> (on file with the North Carolina Law Review).

277. Luntz, *supra* note 276 (naming Senators Feingold, McCain, Boxer, and Lieberman).

278. *See* *South Dakota v. Ubbelohde*, 330 F.3d 1014, 1020 (8th Cir. 2003); Seeronen, *supra* note 113, at 61 (noting that the Corps issues an Annual Operating Plan for the Missouri River System to “provide interested parties throughout the basin the Corps’ expected operations for the Mainstem System applying the criteria set forth in the Master Manual”).

made without a notice and comment period, but they must not exceed the management specifications outlined in the applicable WCP.²⁸⁰ Typically, the WCP gives either an operations project manager or damtender responsibility for the physical operation of a dam or reservoir.²⁸¹ Operational decisions differ from WCP changes in that the former require technical expertise and are very specific in their application. For example, while a WCP may set water level goals in a reservoir to be 100 feet in February, 150 feet in March, and 200 feet in April, the damtender must evaluate weather and stream flow forecasts as well as a host of other variables in order to determine how much water to release on a daily basis in order to achieve the aspirational levels outlined in the WCP.²⁸² Accordingly, analysts at the division level of the Corps evaluate data—which may include current water levels, estimated reservoir input from precipitation or increased flow upstream, temperature predictions, seasonal climatic variance, pollution levels, and persistent drought conditions—to inform water flow decisions that further the primary purposes of a dam.²⁸³

Until recently, it was not clear whether operating decisions were even subject to judicial review. In *South Dakota v. Ubbelohde*, the Eighth Circuit held that operating decisions were reviewable because agency actions are presumed to be subject to judicial review.²⁸⁴ In addition, the Flood Control Act of 1944 and the master manual for the Missouri River main stem reservoir system constituted applicable law.²⁸⁵ For example, as the Flood Control Act requires the Corps to balance between primary purposes and secondary uses, a reviewing court may determine whether the Corps “considered each of these interests before making a decision.”²⁸⁶ After this threshold decision, the court further held that it should defer to the Corps’ decision on how to properly balance the competing interests, which the court viewed as achieving policy goals.²⁸⁷ In so holding, the court rejected the argument that courts can review all operating decisions to ensure they “maximize[] the benefits . . . for all interests.”²⁸⁸

279. Small projects like the B. Everett Jordan Lake project in North Carolina make daily operating decisions without issuing an annual plan.

280. Seeronen, *supra* note 113, at 61.

281. See, e.g., *Excerpts From the Approved 1992 Water Control Manual for B. Everett Jordan Project*, *supra* note 122, § 7-03 (providing for the use of a damtender in this small project); *Water Control Plan for John H. Kerr Dam and Reservoir*, *supra* note 104, § G.3 (detailing the responsibilities of the operations project manager over a large operation).

282. See *Water Control Plan for John H. Kerr Dam and Reservoir*, *supra* note 104, § C.

283. *Id.* §§ B, D, E.

284. *South Dakota v. Ubbelohde*, 330 F.3d 1014, 1027 (8th Cir. 2003).

285. *Id.*

286. *Id.* (citing 16 U.S.C. § 460(d) (2000)).

287. *Id.* at 1030.

288. *Id.* at 1031.

Even subject to judicial review, deference to the Corps' operational decisions is likely to be substantial. These decisions are highly technical and draw upon the "specialized experience" of the Corps.²⁸⁹ According to *Mead*, a court determining the appropriate level of deference would look to the Corps' "thoroughness, logic, and expertness" and to how the operational decisions at issue comport with prior interpretations by the Corps.²⁹⁰ Other sources of weight may include the uniqueness of the decisions in comparison with decisions of other divisions of the Corps in similar circumstances and the time pressure under which the decisions were made.

While the Corps has great latitude in making operational decisions, this power is not without limits. The Corps must consider all the purposes outlined in the project's authorizing statute²⁹¹ and respect the numerous substantive requirements provided.²⁹² Also, the subject project's WCP constrains the Corps' discretion in making operational decisions.²⁹³ Significantly, WCPs typically use the binding words "will" and "will not" in laying down operational guidelines.²⁹⁴ These binding terms are used in the context of directions for emergency, flood, drought, and normal situations.²⁹⁵ When it comes to providing for environmental protection in operating decisions, the Third Circuit has been highly deferential to the Corps.²⁹⁶ In *Proffitt*, the court held that in light of environmental mandates, decisions by the Corps to manage water flow warrant "vast discretion" upon review.²⁹⁷

289. *United States v. Mead Corp.*, 533 U.S. 218, 234 (2001).

290. *See id.* at 235.

291. *Ubbelohde*, 330 F.3d at 1027 ("The Flood Control Act clearly gives a good deal of discretion to the Corps in the management of the River. But this discretion is not unconstrained; the Act lays out purposes that the Corps is to consider in managing the River.").

292. *Id.* at 1028.

293. *Id.* at 1027.

294. *See, e.g., Water Control Plan for John H. Kerr Dam and Reservoir*, *supra* note 104, § G.6 ("The following tasks will be performed by the Kerr operator in connection with flood control operations."); *Excerpts From the Approved 1992 Water Control Manual for B. Everett Jordan Project*, *supra* note 122, §§ 7-02, -04, -05.e, -11.b ("[T]he conduit flow will not be of such magnitude as to cause a higher flood peak . . .").

295. *See Excerpts From the Approved 1992 Water Control Manual for B. Everett Jordan Project*, *supra* note 122, §§ 7-02, -04, -05.e, -11.b.

296. *See Raymond Proffitt Found. v. U.S. Army Corps of Eng'rs*, 343 F.3d 199, 200 (3d Cir. 2003) ("[T]he broad deference that Congress granted the Corps in executing the environmental mission of the WRDA places upon us the obligation to provide a correspondingly deferential judicial review."); *cf. id.* at 211 (indicating that the Corps need not select the most environmentally advantageous course of action and can comply with 33 U.S.C. § 2316 even when considering another interest to be superior to environmental protection).

297. *See id.* at 212.

C. *Corps Discretion in Reallocation of Water Storage*

With regard to water storage in federal reservoirs, Congress passed the WSA of 1958 in recognition of the need for the Corps to have “more comprehensive authority.”²⁹⁸ To this end, the WSA of 1958 allows the Corps to make water storage modifications from the original authorization without congressional approval, as long as they do not rise to the level of “major” changes that “seriously affect” the project’s purposes.²⁹⁹ Congress recognized the practical need for the Corps to use its own discretion and did not limit the purposes of the water storage modifications—meaning, they could benefit recreational, environmental, water supply, and other uses. All original “purposes” must be preserved in some form to avoid a label of major operational change,³⁰⁰ but that alone is not sufficient to avoid triggering the requirement.

The Corps developed its own internal guidelines, which it explained in a brief prepared in the Lake Lanier case. At one time, Corps policy documents stated that modifications “are considered insignificant” if the reallocation to water supply does not exceed the lesser of fifteen percent of “total storage capacity allocated to all authorized Federal purposes” (that is, usable storage) or 50,000 acre-feet.³⁰¹ However, those documents did not specify at what point a reallocation might become “serious” or “major.”³⁰² The Corps appears to have derived these figures from its twenty years of experience implementing the WSA. During that time, “no individual reallocation had involved more than 50,000 acre-feet or fifteen percent of usable storage.”³⁰³ The Army Corps’ current regulations allow the chief engineers to approve “reallocations of up to 15 percent of usable storage or 50,000 acre-feet, whichever is less,” so long as the criteria of 43 U.S.C. § 390(d) are not violated.³⁰⁴ “Reallocations which exceed the [Chief’s] authority may be approved at the *discretion* of the Secretary of the Army if

298. H.R. REP. NO. 85-1122, at 77 (1957); *see also* H.R. REP. NO. 85-1894, at 134 (1958) (“This title provides authority for the Corps of Engineers and the Bureau of Reclamation to include storage for immediate and future water supply in Federal navigation, flood control, irrigation, or multiple-purpose projects . . .”); S. REP. NO. 85-1710, at 133 (1958) (“While it is true that water supply storage may be provided under certain conditions under existing law, [the WSA] makes possible provision of water-supply storage in reservoirs where it is apparent that there will be a future demand for such storage but where the demand is not pressing at the time of construction.”).

299. 43 U.S.C. § 390(d) (2006).

300. *Se. Fed. Power Customers, Inc. v. Caldera*, 301 F. Supp. 2d 26, 32 (D.C. Cir. 2004).

301. *See* U.S. ARMY CORPS OF ENG’RS, EM 1165-2-105, WATER RESOURCE POLICIES AND AUTHORITIES: WATER SUPPLY STORAGE IN CORPS OF ENGINEERS’ PROJECTS 11e, 8a (1961).

302. *Id.*

303. WHISNANT ET AL., *supra* note 48, at 22 (citing U.S. ARMY CORPS OF ENG’RS, ER 1105-2-100, PLANNING GUIDANCE NOTEBOOK, at E-57 (2000)).

304. *Id.*

such reallocations do not require Congressional approval.”³⁰⁵ With this, the Corps still does not identify a particular amount of water reallocation as a “major” operational change or “serious” effect requiring congressional approval. However, the Corps “implicitly recognizes that reallocations of more than fifteen percent of usable storage or 50,000 acre-feet may be within the Army’s WSA authority.”³⁰⁶ Rather than establish a hard threshold, the Corps charges an approved authority with reviewing reallocation proposals and determining whether individual projects require congressional approval.³⁰⁷ In practice, the Corps has used the following guideline: when a modified project “provides essentially equivalent services for the authorized project purposes as originally contemplated by Congress . . . it will normally be considered that the purposes for which the project was authorized are not seriously affected and that major operational changes are not involved.”³⁰⁸

In *Southeastern Federal Power Customers, Inc. v. Geren* (“*SeFPC*”),³⁰⁹ the D.C. Circuit set a limit to the Corps’ discretion when holding a twenty-two percent reallocation of storage capacity of Lake Lanier to constitute a “major operational change” under the 1958 WSA.³¹⁰ Despite this limit, no court or statute has determined the minimum percentage threshold that constitutes a major operational change. In *In re Tri-State Water Rights Litigation*,³¹¹ the U.S. District Court of Florida also recognized limits to the Corps’ discretion in reallocating water supply.³¹² For one, the court agreed with the D.C. Circuit’s conclusion that a twenty-two percent reallocation was a major operational change.³¹³ More importantly, the court gave little deference to the Corps when applying *Chevron*. In considering whether the reallocation seriously affected primary purposes—namely hydropower generation³¹⁴—the court clearly identified the *Chevron* two-step analysis as controlling. However, the court did not grant the Corps the familiar agency-friendly *Chevron* analysis. Rather, in determining the validity of the Corps’ interpretation of “seriously affect,” the court conducted a detailed review of the Corps’ calculations regarding

305. U.S. ARMY CORPS OF ENG’RS, ER 1105-2-100, PLANNING GUIDANCE NOTEBOOK, at E-57 (2000), available at [http://140.194.76.129/publications/eng-regs/er 1105-2-100/entire.pdf](http://140.194.76.129/publications/eng-regs/er%201105-2-100/entire.pdf).

306. WHISNANT ET AL., *supra* note 48, at 22.

307. U.S. ARMY CORPS OF ENG’RS, *supra* note 305, at E-57.

308. WHISNANT ET AL., *supra* note 48, at 22–23.

309. 514 F.3d 1316 (D.C. Cir. 2004).

310. *Id.* at 1325.

311. 639 F. Supp. 2d 1308 (M.D. Fla. 2009).

312. *Id.* at 1347–52.

313. *Id.* at 1350.

314. *Id.* at 1352.

the impact of water reallocation on power generation.³¹⁵ Ultimately, the court disagreed with the Corps and held the purpose of hydropower generation was seriously affected by the reallocation of water storage for water supply.

In light of *SeFPC* and *In re Tri-State*, when it comes to water reallocation decisions, the Corps cannot assume that courts will defer to its interpretation of “major structural or operational changes” or “seriously affect.” Even if a court purports to apply *Chevron*, its conclusion may depend upon the persuasiveness of the Corps’ justifications. One thing is clear, however: the Corps should consider a twenty-two percent reallocation of water storage a major operational change under the WSA. Whether a twenty percent, fifteen percent, or other increment of change below twenty-two percent is “major” has yet to be determined.³¹⁶

Thus, in anticipation of the need to reallocate water supply to meet new and uncertain demands, the Corps should: (1) try to clarify a limit under which changes can routinely be made to a WCP without consulting Congress, and (2) voluntarily approach Congress for authorization for larger percentage changes given the rapid alteration of the climate and environment.

V. RECOGNIZING THE FLEXIBILITY PARADIGM AND MAKING IT OPERATIONAL

As the above discussion demonstrates, the current legal framework under which the Army Corps manages water supply and storage is itself quite broad and flexible.³¹⁷ Within a large group of authorized uses—including water supply for municipal and industrial uses, transportation, electricity generation, recreation, and various environmental amenities—the Corps is given wide discretion in how to balance these uses. The only rigid restrictions governing this flexibility are the requirements that all uses be respected,³¹⁸ that a public hearing occur for a change in the overall balance of uses,³¹⁹ and that only nonmajor changes can occur outside of congressional reauthorization.³²⁰

Though this flexibility was created through a hodgepodge of laws, this should not prevent the Corps from executing its judgment about balancing

315. *Id.* at 1352–54.

316. The baseline is the original measurement when there was zero water storage for an unauthorized purpose, thus preventing avoidance of the WSA’s congressional-authorization requirement by using nonmajor reallocations over a number of years. *See id.* at 1349, 1353.

317. *See supra* Part IV.

318. *See supra* Parts II.A, IV.B.

319. *See supra* Parts III.A.2, IV.A.

320. *See supra* Part IV.C.

uses in the face of a dynamic environment. “As legislation applicable to agencies may be passed at different times, with different goals, and with different breadth[,] [i]t is possible that Congress itself may not even be aware of prior legislation when passing newer legislation.”³²¹ As a result, various statutes may not always be fully complementary. In such situations, “executive branch agencies [must] do what they can to execute all relevant policies applicable to them.”³²² If this is not possible, agencies themselves may resolve conflicting legislative requirements. The *Chevron* doctrine allows these agency decisions to stand when the outcome is considered “reasonable” by the federal courts and when the legislation has been entrusted to the agency by the law or by the courts themselves.³²³ As Richard Stewart pointed out in his seminal article on the history of administrative agencies in the United States, it is an implicit, primary purpose of administrative agencies to take conflicting directives from legislatures, often at different times and in different contexts, and make some sense of them.³²⁴ *Chevron* represents an acknowledgement by the federal judiciary that it will and should often defer to an agency’s interpretation of a statute that it is charged with administering.³²⁵

According to recent conflicts over uses at Corps reservoirs, while it may not be possible to satisfy all of the disparate demands placed on water supply, it *is* possible for the Corps to use its judgment to alter water supply decisions in the face of new demands from population growth and global climate change. Moreover, the recognition of the flexibility of the current legal paradigm means that the Corps may also anticipate making the day-to-day operations themselves more flexible.

How should this occur? There are really two levels to Corps operation of water storage—major decisions in balancing uses made in the WCP and the day-to-day implementation of that plan in the WCM. As noted above in the discussion of the WCPs and the WCMs, WCPs focus on the big picture of allowable uses and the manual operationalizes it on a day-to-day basis. There are also different levels at which decisions can be made in the Army

321. WHISNANT ET AL., *supra* note 48, at 9–10.

322. *Id.* at 10.

323. See *Chevron U.S.A., Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837, 842–45 (1984) (establishing the process and standard for review by courts of federal agency interpretations of conflicting or ambiguous statutes).

324. Richard B. Stewart, *The Reformation of American Administrative Law*, 88 HARV. L. REV. 1669, 1684 (1975).

325. See *supra* Part III.B. In its recent decision, *Coeur Alaska v. Southeast Alaska Conservation Council*, 129 S. Ct. 2458 (2009), the Supreme Court showed strong deference outside of the *Chevron* framework. In light of this decision, the Corps should be assured that if it proceeds with some formality and awareness of its obligations, its decisions on altering its balance of authorized uses will be judicially upheld.

Corps hierarchy. Rulemaking or less formal decisions can apply at the headquarters level, applying to all Corps districts, while district offices themselves can make decisions to alter projects (consistent with national rules) solely within their jurisdiction. This suggests an appropriate breakdown between determinations of high-level, over-arching policy issues and day-to-day operations decisions and localized actions. Value judgment decisions should be made at the Corps' highest levels and then made part of WCPs. Since many of these decisions are likely to apply to more than one operations manual, the Corps could undertake a headquarters rulemaking on which uses should be given priority in more and more common extreme events, and how that could be made operational.

For instance, an open and frank discussion of whether and how human lives should be protected from flooding could inform whether or not dams operated by the Corps should release larger quantities of water at certain times of the year (before the possibility of flood episodes), even if at the same time doing so would reduce the ability to manage drought further down the line on the system. This policy choice could then be implemented in the high-level WCPs for water storage projects. Such trade-offs are not easy. But it is better that they be made at a level that allows public input and a values discussion, such as at the national level of rulemaking, rather than being made on the fly by operations engineers who may have never experienced the confluence of climactic events to which they must then respond.

A rulemaking concerning value choices is also consistent with an approach to adapting laws and resiliency in legal systems. In examining through what lens adaptive capacity of law should be expanded, the Center for Law, Environment, Adaptation, and Resources has proposed that any alteration of major purposes should be undertaken in a large open forum since that is the model under which original project purposes were to be considered and made.³²⁶ Additionally, this focuses attention on decisions of which affected persons should be made aware.

Making broad decisions at the headquarters level also acknowledges the limited resources that the Corps has for making these decisions at the district level. While more tailored rulemaking may be appropriate at the district level for certain operations, much could be accomplished simply with these broad rules to enhance flexibility and analyze values and policy trade-offs. The district offices could retain the ability to implement the policy choices given the facts specific to each local district. For instance, if a high-level policy decision is made to preserve lives over agriculture, a

326. CLEAR, *supra* note 2.

local district could undertake a review of their water supply projects' WCMs. In the context of the specific local operation, it would be appropriate for the district office to bring its knowledge of local climate conditions (including new uncertainty) to determine when water should be released from upstream dams. In the Nashville floods of May 2010, if less water had been stored in the dams for possible agricultural need, there would have been less flooding and human harm during the event.

CONCLUSION

Because the Corps has not faced conflicting demands over water supply throughout most of its water management history, the agency has not utilized its discretion to provide flexibility in altering the balance of uses for water under its control. This history of cooperating water demands coupled with the frequent implementation decisions concerning water demands has created a situation in which the agency tends to perpetuate prior policies. As a result, the Corps has lost track of what changes and decisions it can make, where hard legal boundaries exist, and where it is simply following custom. This creates a rigid legal system, in contrast with the flexibility originally intended.

As an example, despite repeated federal statutes emphasizing environmental values and noneconomic considerations, Corps practice regarding mix of water uses has changed little. This indicates that even the newest regulatory directive to consider environmental amenities and future changes may fare no better. Despite requirements that it *consider* these directives, the Corps has not been more open to flexibility, but less.

This Article has outlined the contours of existing legal authority specifically, showing what the Corps must do, what it may do, and how it can do it. In summary, the Corps has been given the power by multiple statutes to manage the water supplies under its control flexibly, for a wide variety of uses, usually including recreation, transportation, electricity generation, ecology, and water supply. Though the Corps has been reluctant to change the amounts of water for each use or "rebalance," it clearly has the authority to do so.

Given the future of imbalanced water demand and supply, the Corps must recognize its ability to be flexible and responsive, and it should undertake more active management—even though it will face resistance from existing interests favored under the status quo.

Though the Corps has the authority to rebalance, because of the important impacts of such changes, these major policy changes should be well considered. In addition to the required public hearing to alter a WCP, this Article recommends that the Corps examine water demand and supply

levels on a regional basis and make general decisions about relative needs and expected changes in supply and demand going forward. It should then go through notice and comment rulemaking³²⁷ at a centralized level to ensure it exercises its broad power responsibly.

Given the uncertainty of a changing climate, it is advisable for the Corps to consider both wider swings in its use balancing and the priority of primary purposes during periods of water shortage and flooding. In the changed, dynamic water world of today, the Corps will have to move from being simply an agency that pulls levers and knobs, to an agency that actually uses the flexibility Congress gave it and applies its expertise in water demand and usage to make decisions among competing interests. Very large changes will require congressional approval or legislative authorization, but many important changes can be made now. The environment will continue to change rapidly, and the Corps must use its existing powers to provide the flexibility needed to remain current. This Article provides a road map for the Corps and interested parties to facilitate that process. Hopefully, it may also be used more broadly to illustrate the practical ways that flexibility built into existing systems may be utilized to adapt in a dynamic world.

327. See 5 U.S.C. § 553 (2006).