UCLA LAW REVIEW

Interstitial Federalism

Rhett B. Larson

ABSTRACT

Spillover commons are common-pool resources that cross jurisdictional boundaries. Governing spillover commons poses unique and significant challenges. If jurisdictional boundaries are drawn too narrowly, jurisdictions can externalize costs to neighbors. If the jurisdictional boundaries are drawn too broadly, too many remote stakeholders unnecessarily increase transaction costs. The jurisdictional boundaries must be just right—the Goldilocks governance challenge. To meet this challenge, jurisdictional boundaries should, where possible, correspond to the geographic contours of spillover commons. By making jurisdiction consistent with geography, jurisdictions internalize the costs of managing spillover commons while lowering transaction costs. In the United States, this necessitates governance of the inevitable cracks between state and federal jurisdiction associated with spillover commons. This Article describes that level of governance between state and federal jurisdiction as interstitial federalism. Governance institutions that manage spillover commons at the interstitial federalism level are established through constitutionally prescribed interstate compacts. Relying primarily on two recent controversies involving interstate river compacts, this Article provides a critique of the current approach to interstitial federalism and proposes reforms to appropriately strengthen interstitial federalism institutions. This approach has the potential to translate into other areas of interstitial federalism—including public transportation, environmental protection, and energy sharing—in order to inform international transboundary governance.

AUTHOR

Associate Professor of Law at Arizona State University's Sandra Day O'Connor College of Law.

I am indebted to Robert Abrams, Owen Anderson, Dmitry Bam, Monu Bedi, Karen Bradshaw Schulz, Sarah Burstein, Adam Chodorow, Victor Flatt, Robert Glennon, Zachary Gubler, Priya Gupta, Meredith Harbach, Tara Helfman, Carissa Hessick, Eric Johnson, Drew Kershen, Zachary Kramer, Philip Lee, Alan Madry, Kaipo Matsumura, Laura Napoli Coordes, Hari Osofsky, Matthew Parlow, Justin Pidot, Troy Rule, Erin Ryan, Shelley Ross Saxer, and Dan Tarlock for their helpful comments on previous drafts of this paper. Special thanks goes to the editors of the *UCLA Law Review* for their outstanding editorial work. All errors are mine.

TABLE OF CONTENTS

INTRODUCTION 910
I. THE EVOLUTION OF INTERSTITIAL FEDERALISM 916
  A. The State-Centric Approach to Governing Spillover Commons 919
  B. The Federal-Centric Approach to Spillover Commons 923
  C. Interstitial Federalism and Spillover Commons 926
II. A CRITIQUE OF THE CURRENT STATE OF INTERSTITIAL FEDERALISM 931
  A. When Interstitial Federalism Is Too Weak 931
  B. When Interstitial Federalism Is Too Strong 936
  C. When Interstitial Federalism Is Too Narrow 941
III. REFORMING INTERSTITIAL FEDERALISM INSTITUTIONS 947
  A. The Case for Stronger Interstitial Federalism 949
  B. Integrated Management and Interstitial Federalism 954
  C. Fiduciary Governance and Interstitial Federalism 960
CONCLUSION 967

INTRODUCTION

Jurisdictions share many types of resources that cross borders.[1] In the United States, states share fish and wildlife, energy and transportation infrastructure, and forests and rivers that traverse jurisdictional boundaries.[2] Governing these shared resources is more difficult when they are spillover commons, common-pool resources that cross jurisdictional boundaries and are subject to scarcity and overappropriation concerns.[3] Spillover commons present a particularly unique challenge to American-style federalism.[4] Appropriately scaling governance institutions is the true challenge of federalism—what this Article calls the Goldilocks governance challenge.[5]

Under the Goldilocks governance challenge, the scale of an institution's jurisdiction cannot be too big or too small; it must be just right to rein in transaction costs and limit externalities.[6] If the institution is too big, stakeholders, decisionmakers, and local conditions are too remote from one another, unnecessarily

1. *See generally* VINCENT V. THURSBY, INTERSTATE COOPERATION (1953) (recommending the use of interstate agreements to manage shared transboundary resources); Jerry Frug, *Decentering Decentralization*, 60 U. CHI. L. REV. 253 (1993) (arguing in favor of decentralization to manage resources shared across boundaries).
2. *See, e.g.*, Port of New York Authority Compact, ch. 77, 42 Stat. 174 (1921); Pacific Northwest Electric Power Planning and Conservation Act, 16 U.S.C. §§ 839–839h (2012); *see also* Shelley Ross Saxer, *Local Autonomy or Regionalism?: Sharing the Benefits and Burdens of Suburban Commercial Development*, 30 IND. L. REV. 659 (1997) (noting the problems of externalities associated with transboundary resources).
3. *See* Garrett Hardin, *The Tragedy of the Commons*, 162 SCI. 1243 (1968) (arguing that users of common-pool resources make rational individual decisions that ultimately overexploit the resource and impose externalities on all users). Common-pool resources are resources for which users compete for their consumption (rivalrous), but cannot exclude other users from access and enjoyment (nonexcludable). *See* Sheila R. Foster, *Collective Action and the Urban Commons*, 87 NOTRE DAME L. REV. 57, 58–59 (2011).
4. *See generally* Aziz Z. Huq, *Does the Logic of Collective Action Explain Federalism Doctrine?*, 66 STAN. L. REV. 217 (2014) (noting arguments that spillover effects form a structural principle underlying federalism); *see also* William W. Buzbee, *Recognizing the Regulatory Commons: A Theory of Regulatory Gaps*, 89 IOWA L. REV. 1 (2003) (noting the role of common pool resources shared between jurisdictions in influencing regulatory roles in U.S.-style federalism).
5. Seth Davis, *The False Promise of Fiduciary Government*, 89 NOTRE DAME L. REV. 1145, 1149 (2014); George S. Geis, *An Empirical Examination of Business Outsourcing Transactions*, 96 VA. L. REV. 241, 292 (2010) (discussing the failure of contractual forms to evolve into "some Goldilocks model of governance" in the realm of outsourcing partnerships).
6. *See* Daniel C. Esty, *Revitalizing Environmental Federalism*, 95 MICH. L. REV. 570, 584–85 (1996); Christine A. Klein, *On Integrity: Some Considerations for Water Law*, 56 ALA. L. REV. 1009, 1010–11 (2005); *see also* Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960) (noting the relationship between transaction costs and externalities).

increasing transaction costs.[7] If the institution is too small, it can externalize costs to its neighbors.[8] For example, if two states share a river and the jurisdictional boundaries are state boundaries, one state can dam or pollute the river and externalize the costs of water scarcity or water contamination to its neighbor.[9] If those states share a river and the jurisdiction is federal, water management will be inefficient because stakeholders will be attenuated from management decisions and managers will be less familiar with the unique regional conditions associated with the river.[10]

This Article makes two prescriptions to address the Goldilocks governance challenge as applied to spillover commons. The first is the integration prescription, which calls for governance institutions to integrate unique economic, ecologic, and cultural conditions into the management of spillover commons.[11] The second is the internalization prescription, which provides that jurisdiction be assigned over spillover commons at the smallest scale that internalizes the effects of management decisions.[12] In the case of spillover commons, jurisdictional boundaries must be redrawn, wherever possible, to conform to the geographic contours of the resource.

Again, interstate rivers are illustrative. For purposes of water management, the world is like a golf ball—a sphere pocked with dimples. Each dimple is a river basin, or catchment, and the boundaries between those dimples are watersheds.[13] All water within a basin drains to a common point. As such, jurisdiction based

7. *See, e.g.*, Vill. of Euclid v. Ambler Realty Co., 272 U.S. 365, 387 (1926). For a general discussion of the role of transaction costs on intergovernmental cooperation and federalism, see Robert D. Cooter & Neil S. Siegel, *Collective Action Federalism: A General Theory of Article I, Section 8*, 63 STAN. L. REV. 115 (2010).

8. *See* Esty, *supra* note 6, at 601–02. For a general discussion of the role of externalities on intergovernmental cooperation and federalism, see Charles Fried, *Federalism—Why Should We Care?*, 6 HARV. J.L. & PUB. POL'Y 1 (1982).

9. *See* Jonathan Cannon, *Environmentalism and the Supreme Court: A Cultural Analysis*, 33 ECOLOGY L.Q. 363, 386 (2006); Emily Hammond Meazell, *Super Deference, the Science Obsession, and Judicial Review as Translation of Agency Science*, 109 MICH. L. REV. 733 (2011) (highlighting that courts' tendency to defer to state agencies on scientific claims about common resources leaves those claims susceptible to misuse); Dan Tarlock, *Hydro Law and the Future of Hydroelectric Power Generation in the United States*, 65 VAND. L. REV. 1723, 1735–38 (2012).

10. *See* Esther Bartfeld, *Point-Nonpoint Source Trading: Looking Beyond Potential Cost Savings*, 23 ENVTL. L. 43, 61 (1993); J.B. Ruhl & Harold J. Ruhl, Jr., *The Arrow of the Law in Modern Administrative States: Using Complexity Theory to Reveal the Diminishing Returns and Increasing Risks the Burgeoning of Law Poses to Society*, 30 U.C. DAVIS L. REV. 405, 471–72 n.159 (1997).

11. *See* Michael Fakhri, *Images of the Arab World and the Middle East—Debates About Development and Regional Integration*, 28 WIS. INT'L L.J. 391, 394 (2010).

12. ROBERT D. COOTER, THE STRATEGIC CONSTITUTION 107 (2000).

13. *See* Craig Anthony Arnold, *Fourth-Generation Environmental Law: Integrationist and Multimodal*, 35 WM. & MARY ENVTL. L. & POL'Y REV. 771, 801 (2011) ("Watersheds are areas of land that drain to common points on a body of water.").

on a basin naturally internalizes the costs associated with water scarcity and quality. The watershed is thus the natural jurisdictional boundary, and the catchment the appropriate scale of jurisdiction, under the internalization prescription.[14] The jurisdiction of governance institutions should be consistent with geography wherever possible, but particularly with respect to spillover commons where geography inherently internalizes costs.

These institutions must govern the inevitable cracks associated with spillover commons.[15] Spillover commons are like cracks in a ceiling. It is unnecessarily expensive to put a large patch over a small crack. But the crack will leak if the fix is too small. For spillover commons, state jurisdiction is too small to internalize management costs and benefits, but federal power is too large to efficiently engage with local interests without unnecessarily high transaction costs. These jurisdictional cracks result in leaks in the form of inefficient and ineffective resource management. These leaks must be patched with appropriately scaled legal and political institutions. The often narrow, binary view of federalism—as a choice simply between state and federal jurisdiction—should be abandoned in the case of spillover commons.[16] This Article calls the level of governance between federal and state jurisdiction applied to spillover commons interstitial federalism. Interstitial federalism institutions are created through the constitutionally prescribed interstate compact process.[17] Strong interstitial federalism institutions are essential for effective management of spillover commons.[18] This Article provides a critique of the current approach to interstitial federalism and proposes reforms to meet the internalization and integration prescriptions necessary to address the Goldilocks governance challenge.

14. *See* COOTER, *supra* note 12, at 105–10; A. Dan Tarlock, *The Potential Role of Local Governments in Watershed Management*, 20 PACE ENVTL. L. REV. 149, 153 (2002) (describing the vision of planners and resource managers who claim the watershed is "the 'right' organizing unit for integrated land and water resource management").

15. For a general discussion of federalism and interjurisdictional cooperation, see ERIN RYAN, FEDERALISM AND THE TUG OF WAR WITHIN (2011).

16. Aviam Soifer, *Truisms That Never Will Be True: The Tenth Amendment and the Spending Power*, 57 U. COLO. L. REV. 793, 809 (1986) ("It is a serious blunder to view federalism as a binary or zero-sum phenomenon.").

17. Article I, section 10, clause 3 of the U.S. Constitution provides that "[n]o State shall, without the Consent of Congress . . . enter into any Agreement or Compact with another State, or a foreign Power . . . ." For a general discussion of the relationship between federalism and interstate water management, see Noah D. Hall, *Toward a New Horizontal Federalism: Interstate Water Management in the Great Lakes Region*, 77 U. COLO. L. REV. 405 (2006).

18. Brett M. Frischmann, *Spillovers Theory and Its Conceptual Boundaries*, 51 WM. & MARY L. REV. 801, 802–03 (2009); Rhett B. Larson, *Innovation and International Commons: The Case of Desalination Under International Law*, 2012 UTAH L. REV. 759, 802 (2012); Philip J. Weiser, *Federal Common Law, Cooperative Federalism, and the Enforcement of the Telecom Act*, 76 N.Y.U. L. REV. 1692, 1699 (2001).

In this Article, I rely on transboundary rivers as examples of spillover commons, and I rely on river basin commissions established by interstate compacts as examples of interstitial federalism institutions. In particular, I use two recent interstate disputes over transboundary rivers. The first is a lawsuit filed by the Attorney General of New York against the Delaware River Basin Commission relating to hydraulic fracturing operations within the basin.[19] The second example is the U.S. Supreme Court's recent decision in *Tarrant Regional Water District v. Herrmann*[20] regarding water apportionment in the Red River Basin.[21] Importantly, while interstate rivers are the paradigmatic example of spillover commons—and the only example relied on in this paper—interstitial federalism could be applied to other spillover commons, including oceans and coastal land management, fisheries, renewable energy development, endangered species, infectious disease, and energy and transportation infrastructure.

This Article proceeds in three parts. Part I describes interstitial federalism and situates it within evolving conceptions of federalism using the history of interstate water law as an example. Part I also distinguishes interstitial federalism from other conceptions of federalism, such as new federalism, horizontal federalism, and cooperative federalism.[22]

Part II critically evaluates the current state of interstitial federalism, using the recent examples in the Red River and Delaware River basins to argue that interstitial federalism institutions are often either too weak to internalize costs and integrate essential considerations, or too strong, leading to concerns about state and federal sovereignty and the political viability of cooperation in spillover commons management. Part II also illustrates how inappropriately drawn juris-

19. *See* Christie Smythe & Tiffany Kary, *Judge Dismisses N.Y. Lawsuit Over Delaware Basin Fracking*, BLOOMBERG NEWS (Sept. 24, 2012, 11:07 AM), http://www.bloomberg.com/news/2012-09-24/judge-dismisses-n-y-lawsuit-over-delaware-basin-fracking.html; Ian Urbina, *Regulation Lax as Gas Wells' Tainted Water Hits River*, N.Y. TIMES (Feb. 26, 2011), http://www.nytimes.com/2011/02/27/us/27gas.html.

20. 133 S. Ct. 2120 (2013).

21. For a broad discussion regarding the need for transboundary regional governance of natural resources, see Robert B. Keiter, *Beyond the Boundary Line: Constructing a Law of Ecosystem Management*, 65 U. COLO. L. REV. 293 (1994) and Joseph L. Sax & Robert B. Keiter, *The Realities of Regional Resource Management: Glacier National Park and Its Neighbors Revisited*, 33 ECOLOGY L.Q. 233 (2006).

22. Michael C. Dorf & Charles F. Sabel, *A Constitution of Democratic Experimentalism*, 98 COLUM. L. REV. 267, 271 (1998) (defining "new federalism" as a conception of states that are "virtuous republics . . . [s]maller and more homogenous than the nation state. . . [which are] supposed to govern themselves better when nearly alone" and "cooperative federalism" as "democratic experimentalism" where the federal government delegates authority and discretion to state agencies to implement federal statutes); *see also* Samuel Issacharoff & Catherine M. Sharkey, *Backdoor Federalization*, 53 UCLA L. REV. 1353, 1356 (2006) (describing "horizontal federalism" as "policing relations between the states").

dictional boundaries result in either high transaction costs or negative externalities.

Part III argues that interstitial federalism institutions should be given greater regulatory and enforcement power, as well as more funding to meet the internalization and integration prescriptions. Properly empowered and adequately funded interstitial federalism institutions will facilitate the sustainable and collaborative management of spillover commons and the efficient resolution of interjurisdictional disputes over these resources. The problem, however, is that excessively empowered interstitial federalism institutions could interfere with the sovereignty and functionality of state and federal institutions, and thus be political nonstarters. To address this concern, Part III also proposes two reforms that would prevent empowered interstitial federalism institutions from undermining or usurping state and federal jurisdiction, while still allowing them to comply with the internalization and integration prescriptions.

First, interstitial federalism institutions should incorporate principles of integrated management into regulation of spillover commons to comply with the integration prescription.[23] Such management requires more effective integration of economic, sociocultural, and ecologic considerations to spillover commons governance. More effective economic integration is facilitated by adopting the shared benefits principle. The shared benefits principle posits that where a particular jurisdiction has a comparative advantage in the development of a spillover commons, it should exploit that advantage, but share benefits with other jurisdictions sharing the resource.[24] For example, where an upstream, mountainous jurisdiction has significant hydroelectric potential, but limited arable land, and a downstream jurisdiction has limited hydroelectric potential but significant arable land, the two jurisdictions should trade energy and food, rather than each attempting to develop both agriculture and hydroelectric facilities.[25] More effective sociocultural integration in spillover commons management is achieved through collaborative governance sustained by an inclusive and transparent stakeholder process, in particular with greater involvement of Native American tribes in

23. *See* Kenneth W. Abbott & Duncan Snidal, *Strengthening International Regulation Through Transnational New Governance: Overcoming the Orchestration Deficit*, 42 VAND. J. TRANSNAT'L L. 501 (2009); Barton S. Thompson, Jr., *A Federal Act to Promote Integrated Water Management: Is the CZMA a Useful Model?*, 42 ENVTL. L. 201 (2012).

24. A. Dan Tarlock & Patricia Wouters, *Are Shared Benefits of International Waters an Equitable Apportionment?*, 18 COLO. J. INT'L ENVTL. L. & POL'Y, 523, 527 (2007); *see also* Larson, *supra* note 18, at 803–05.

25. The concept of shared benefits comes from welfare economics, but also is mirrored in the work of Robert Ellickson, who looked at how rural landowners shared costs of boundary fences. *See* ROBERT C. ELLICKSON, ORDER WITHOUT LAW 65–81 (1991); Robert C. Ellickson, *Property in Land*, 102 YALE L.J. 1315, 1330 (1993).

transboundary governance. More effective integration of ecological considerations is facilitated by using improved sustainability markers (including the concept of "virtual water") and engaging in adaptive resource management.[26]

Second, interstitial federalism institutions should be subject to a judicially enforceable fiduciary duty to manage spillover commons for the benefit of all sharing jurisdictions.[27] As the state remains the trustee of public trust resources, like water, the interstitial federalism institution should owe a trustee-like obligation to states in managing spillover commons.[28] To avoid protracted disputes over fiduciary duties and to encourage interstate cooperation, these institutions could rely on liability rules or compulsory unitization to equitably compensate jurisdictions prejudiced by management decisions.[29] These reforms will minimize political obstacles associated with states empowering interstitial federalism institutions, and they will avoid marginalizing members of the institution, including Native American tribes. Furthermore, this approach will help resolve longstanding legal uncertainty regarding the relationship between the Dormant Commerce Clause,[30] state police power, and spillover commons.[31] Additionally, these reforms will help avoid the Goldilocks governance challenge by striking the appropriate balance between cost internalization through broader, collaborative governance and lower transaction costs through narrower, localized expertise. Finally, these proposals may translate to the management of other spillover

26. *See, e.g.*, J.A. (Tony) Allan, *Virtual Water—The Water, Food, and Trade Nexus: Useful Concept or Misleading Metaphor*, 28 WATER INT'L 4 (2003); *see also*, Robin Kundis Craig & J.B. Ruhl, *Designing Administrative Law for Adaptive Management*, 67 VAND. L. REV. 1 (2014) (proposing a new model for adaptive resource management).

27. For a similar argument on using federalism principles to implement a human right to water, see Rhett B. Larson, *The New Right in Water*, 70 WASH. & LEE L. REV. 2181, 2257–60 (2013).

28. *See* Robin Kundis Craig, *A Comparative Guide to Western States' Public Trust Doctrines: Public Values, Private Rights, and the Evolution Toward an Ecological Public Trust*, 37 ECOLOGY L.Q. 53 (2010) (highlighting the use of the public trust doctrine to hold western states accountable for maintaining and protecting their water resources).

29. Troy A. Rule, *Property Rights and Modern Energy*, 20 GEO. MASON L. REV. 803, 833–34 (2013). For a discussion of the role of compulsory unitization as a means to achieve equitable resource sharing, see Michael Pappas, *Energy Versus Property*, 41 FLA. ST. U. L. REV. 435, 468–72 (2014).

30. The Commerce Clause of the U.S. Constitution provides that "Congress shall have [the] power . . . [t]o regulate commerce with foreign nations, and among the several states." U.S. CONST. art. I, § 8, cl. 3. The "dormant" Commerce Clause is not a clause; it is a term describing the implication of the Commerce Clause, specifically that the affirmative grant of power to Congress to regulate interstate commerce also restricts the states' power to interfere with interstate commerce. *See, e.g.*, S. Pac. Co. v. Arizona, 325 U.S. 761, 769 (1945). *See generally* Julian N. Eule, *Laying the Dormant Commerce Clause to Rest*, 91 YALE L.J. 425, 425 n.1 (1982).

31. Hall, *supra* note 17, at 452.

commons, like wildlife or infrastructure, and to international management of transboundary resources.[32]

I. THE EVOLUTION OF INTERSTITIAL FEDERALISM

Transboundary waters are the paradigmatic example of spillover commons and their related governance challenges. In the ongoing drought in the western United States, parched states struggle to share the Colorado River.[33] In the drought-stricken High Plains, states continue to deplete the Ogallala Aquifer.[34] Southern states face water scarcity in the Chattahoochee River.[35] States sharing the Great Lakes grow increasingly concerned about sustainable water use.[36] The historical conception of federalism tracks the evolution of interstate water law, including the development of interstitial federalism institutions created by interstate compact.[37] But early in the nineteenth century, an explorer who surveyed the Colorado River basin articulated many of the concerns associated with interstitial federalism.

In 1868, the U.S. Congress funded the expeditions of John Wesley Powell in the Colorado River basin.[38] One of the most intriguing recommendations made by Powell to Congress in the wake of the expeditions was that the boundaries of

32. For a discussion of international governance of spillover commons, see Gabriel Eckstein, *Water Scarcity, Conflict, and Security in a Climate Change World: Challenges and Opportunities for International Law and Policy*, 27 WIS. INT'L L.J. 409 (2009).

33. Christine A. Klein, *Water Bankruptcy*, 97 MINN. L. REV. 560, 571 (2012); *see also* Jesse Reiblich & Christine A. Klein, *Climate Change and Water Transfers*, 41 PEPP. L. REV. 439, 444 (2014).

34. Robert W. Adler, *Climate Change and the Hegemony of State Water Law*, 29 STAN. ENVTL. L.J. 1, 16 (2010).

35. Joseph W. Dellapenna, *Interstate Struggles Over Rivers: The Southeastern States and the Struggle Over the 'Hooch*, 12 N.Y.U. ENVTL. L.J. 828, 829 (2005); Nathan C. Johnson, *Protecting Our Water Compacts: The Looming Threat of Unilateral Congressional Interaction*, 2010 WIS. L. REV. 875, 883 (2010).

36. Christine A. Klein, *The Law of the Lakes: From Protectionism to Sustainability*, 2006 MICH. ST. L. REV. 1259, 1266–67 (2006).

37. *See, e.g.*, Douglas L. Grant, *Interstate Water Allocation Compacts: When the Virtue of Permanence Becomes the Vice of Inflexibility*, 74 U. COLO. L. REV. 105 (2003) (using examples of three different interstate compacts to illustrate changing conceptions of federalism through history).

38. J.W. POWELL, REPORT ON THE LANDS OF THE ARID REGION OF THE UNITED STATES (2d. ed. 1879) [hereinafter POWELL REPORT]; *see also* JOHN WESLEY POWELL, SEEING THINGS WHOLE (William deBuys ed., 2001) (providing a biographical account of Powell's life, including his expedition to the Colorado River basin and efforts to advise Congress on western settlements). *See generally* J.W. POWELL, THE EXPLORATION OF THE COLORADO RIVER AND ITS CANYONS (Dover Publ'ns 1961) (1895) (detailing trips Powell made to the Colorado River in the nineteenth century).

western states should be based on watersheds of western rivers.[39] Powell argued that such an approach, where state boundaries are based on drainage basins, would avoid interstate disputes over water resources in the arid west.[40] Congress ignored Powell's recommendation, and Powell's warning has proven prescient.[41]

For example, in the very river basin where Powell formulated his recommendation, interstate water disputes almost led to a twentieth century civil war. The Colorado River basin incorporates seven states and forms the boundary between Arizona, California, and Nevada. In 1935, Arizona Governor Benjamin Baker Moeur had spies reporting on California's construction of the Parker Dam on the Colorado River.[42] When construction crews crossed into Arizona territory, Moeur sent the National Guard to oppose construction.[43] Harold L. Ickes, the U.S. Secretary of the Interior at the time, halted construction of the dam in exchange for troops being recalled—preventing what might have been a violent confrontation between Arizona and California.[44] Indeed, disputes between neighboring jurisdictions over shared water sources have been a prominent feature of interstate relations for over a century.[45]

39. *See* WALLACE STEGNER, BEYOND THE HUNDREDTH MERIDIAN: JOHN WESLEY POWELL AND THE SECOND OPENING OF THE WEST 322 (1954); Arnold, *supra* note 13, at 801 (defining watersheds as "areas of land that drain to common points on a body of water").

40. John Wesley Powell, Speech Before the Montana Constitutional Convention (Aug. 9, 1889), *quoted in* DANIEL KEMMIS, THIS SOVEREIGN LAND 179 (2001) ("I want to present to you what I believe to be ultimately the political system which you have got to adopt in this country, and which the United States will be compelled sooner or later ultimately to recognize. I think each drainage basin in the arid land must ultimately become the practical unit of organization, and it would be wise if you could immediately adopt a county system which would be convenient with drainage basins.").

41. Powell's arguments have been reiterated in recent legal scholarship. *See, e.g.*, Craig Anthony Arnold, *Adaptive Watershed Planning and Climate Change*, 5 ENVTL. & ENERGY L. & POL'Y 417, 420 (2010) ("[W]ater resources should be managed at ecosystem scales, or at watershed scales, as watersheds are the ecological systems of water."); Tarlock, *supra* note 14, at 153 (describing the view that watersheds are "the 'right' organizing unit for integrated land and water resource management").

42. MARC REISNER, CADILLAC DESERT: THE AMERICAN WEST AND ITS DISAPPEARING WATER 256–60 (1993).

43. *Id.*; *see also* Jon Kyl & Ryan A. Smith, *Foreword* to *Symposium: Water Law and Policy Conference*, 49 ARIZ. L. REV. 209, 210 (2007).

44. REISNER, *supra* note 42, at 259; *see also* A. Dan Tarlock, *Safeguarding International River Ecosystems in Times of Scarcity*, 3 U. DENV. WATER L. REV. 231, 237 n. 35 (2000) (citing JACK L. AUGUST, JR., THE VISION IN THE DESERT: CARL HAYDEN AND HYDROPOLITICS IN THE AMERICAN SOUTHWEST 146–48 (1999)).

45. *See, e.g.*, Kansas v. Colorado, 185 U.S. 125 (1902) (involving litigation between Kansas and Colorado over water apportionment in the Arkansas River); Pollard's Lessee v. Hagen, 44 U.S. 212 (1845) (involving conflicting claims by grantees of both the United States and the state of Alabama over land situated in Alabama near the Gulf of Mexico).

The United States is dotted with rivers, lakes, and aquifers that cross state and tribal boundaries, including some of the country's most ecologically sensitive, commercially valuable, and strategically significant water sources.[46] As the conflict over dam construction on the Colorado River illustrates, protecting and developing these shared resources under the cloud of interjurisdictional politics is one of the most formidable governance challenges in the United States.[47] This governance challenge only grows more difficult as population growth and climate change aggravate water scarcity in many parts of the country.[48]

In the United States, there are three approaches to allocating water between states. The first is the common law doctrine of equitable apportionment developed by the U.S. Supreme Court in cases involving its original jurisdiction over interstate water disputes.[49] The second is Congressional apportionment, whereby Congress apportions water between states by statute.[50] The third approach to regulating water apportionment and resolving water disputes between coriparian states is through interstate compacts. Interstate compacts are constitutionally sanctioned agreements between states, enacted by state legislation and approved by Congress.[51] Typically, interstate water compacts establish commissions comprised of representatives of the member states, and often representatives of federal agencies.[52]

46. *See* Daniel P. Loucks, *Managing America's Rivers: Who's Doing It?*, 1 INT'L J. RIVER BASIN MGMT. 21, 24 (2003).

47. Justice Oliver Wendell Holmes, in an interstate water dispute, noted the role of the federal government in these disputes as essential, because the alternative to federal government intervention is interstate belligerence and even violence. Missouri v. Illinois, 200 U.S. 496, 518 (1906).

48. Noah D. Hall, *Interstate Water Compacts and Climate Change Adaptation*, 5 ENVTL. & ENERGY L. & POL'Y J. 237, 246–48 (2010).

49. Article III, Section 2 of the U.S. Constitution grants federal courts original jurisdiction over "[c]ontroversies between two or more States." U.S. CONST. art. III, § 2. For a discussion of the principles of equitable apportionment, see Nebraska v. Wyoming, 325 U.S. 589 (1945) and Colorado v. New Mexico, 459 U.S. 176 (1982).

50. Congressional authority to apportion water is granted through both the Supremacy and Commerce Clauses. *See* U.S. CONST. art. VI, cl. 2; U.S. CONST. art. I, § 8, cl. 3. For an example of Congressional apportionment and its role in resolving interstate water disputes, see Boulder Canyon Project Act, 43 U.S.C. §§ 617–617u (2012) and Arizona v. California, 373 U.S. 546 (1963). *See also* Truckee-Carson-Pyramid Lake Water Rights Settlement Act, Pub. L. No. 101-618, §§ 201–210, 104 Stat. 3289, 3294–3324 (1990).

51. U.S. CONST. art. I, § 10, cl. 3 ("No State shall, without the Consent of Congress . . . enter into any Agreement or Compact with another State, or with a foreign Power . . . .").

52. *See* Robert H. Abrams, *Water, Climate Change, and the Law: Integrated Eastern States Water Management Founded on a New Cooperative Federalism*, 42 ENVTL. L. REV. NEWS & ANALYSIS 10433, 10449 (2012); Jeffrey P. Featherstone, *Existing Interstate Compacts: The Law and the Lessons*, 4 TOL. J. GREAT LAKES' L. SCI. & POL'Y 271, 280 (2001).

This section discusses how these three approaches to U.S. interstate water law have evolved from a state-centric approach, through a period of centralized federal apportionment, and finally toward a model of interstitial federalism. Under this increasingly used model, the river basin forms the effective political boundary for purposes of interstate water allocation in accordance with the internalization prescription of government jurisdiction. This evolution of interstate water law often tracks the broader understanding of federalism.

A. The State-Centric Approach to Governing Spillover Commons

The earliest Supreme Court decisions related to water bodies dealt with ownership of the beds and banks of navigable waters.[53] These decisions held that the federal government maintained any title to the beds and banks of navigable rivers in federal territories in trust for future states, so that all states entered the Union on equal footing with the first thirteen states, at least with respect to ownership of the beds and banks of navigable waters.[54] Upon achieving statehood, the new state becomes the trustee of navigable waters.[55] The question of navigability was a fact-intensive inquiry, with navigable waters defined as those that were used or were susceptible to being used as highways of commerce at the time of statehood.[56] Non-navigable waters could be conveyed to and owned by private parties, while navigable waters were held in trust by the state for the benefit of its citizens.[57] These decisions set an early tone favoring the elevation of state rather than federal sovereignty over water resources that would carry over into how transboundary water disputes were resolved for decades.[58]

The question of navigability and title to submerged lands was essential to the question of interstate apportionment of transboundary water bodies in two ways. First, in what would have seemed like an expected development to John Wesley Powell, many of the earliest interstate disputes regarding rivers typically dealt solely

53. *See, e.g.*, Shively v. Bowlby, 152 U.S. 1 (1894); Martin v. Lessee of Waddell, 41 U.S. 367 (1842).
54. *Shively*, 152 U.S. at 2; *see also* PPL Montana, LLC v. Montana, 132 S. Ct. 1215, 1235 (2012); Eric Biber, *The Price of Admission: Causes, Effects, and Patterns of Conditions Imposed on States Entering the Union*, 46 AM. J. LEGAL HIST. 119 (2004).
55. Biber, *supra* note 54, at 175.
56. The Daniel Ball, 77 U.S. 557, 563 (1870), *superseded by statute*, Clean Water Act, Pub. L. No. 95-217, 91 Stat. 1566, *as recognized in* Rapanos v. United States, 126 S. Ct. 2208 (2006).
57. Lehigh Falls Fishing Club v. Andrejewski, 1999 PA Super 184, 735 A.2d 718, 719 (Pa. Super. Ct. 1999).
58. *See* Robert W. Adler, *The* Ancient Mariner *of Constitutional Law: The Historical, Yet Declining Role of Navigability*, 90 WASH. U. L. REV. 1643 (2013).

with boundary disputes where the boundary was the water body itself.[59] These boundary disputes are illustrative of how protective individual states often are of their sovereignty, particularly when it comes to natural resources flowing across, or in some cases actually forming, a state border.[60]

Second, granting states title to navigable waters under the equal footing doctrine effectively conceded to each state the primary jurisdiction over water apportionment within its boundaries.[61] States became the trustee of the river, granting usufructory water rights to citizens, either through common law riparian rights[62] or through a prior appropriation rights scheme.[63] Neighboring states can thus have dramatically different legal regimes, not to mention policy aims, governing water use and management. These differences have inevitably led to water disputes between states over transboundary waters.

As noted above, the Supreme Court has original jurisdiction over legal disputes between states, and the Court applies the doctrine of equitable apportionment in deciding these cases when they involve shared waters.[64] Early equitable apportionment decisions track the early preference for state autonomy asserted and sustained both in the equal footing doctrine and in boundary disputes. In 1907, the Court issued its seminal equitable apportionment decision in *Kansas v. Colorado*.[65] In that case, Kansas sought an injunction against Colorado's use of the transboundary Arkansas River.[66] In rejecting Kansas' petition, the Court held:

59. A. Dan Tarlock, *The Law of Equitable Apportionment Revisited, Updated, and Restated*, 56 U. COLO. L. REV. 381, 384 (1985).

60. *See, e.g.*, Nebraska v. Iowa, 143 U.S. 359 (1892) (deciding the boundary line between Nebraska and Iowa based on the question of how the changing course and banks of the Missouri River, by accretion or avulsion, also impacted the border between the two states).

61. *See* Adler, *supra* note 58, at 1651 ("Under the equal footing doctrine, it helps to define the extent of state sovereignty relative to that of the federal government, and to ensure constitutional equality among the states."); *see also* Josh Patashnik, Arizona v. California *and the Equitable Apportionment of Interstate Waterways*, 56 ARIZ. L. REV. 1, 41 (2014) ("The equal-footing doctrine is one of the pillars of American federalism.").

62. Shelley Ross Saxer, *The Fluid Nature of Property Rights in Water*, 21 DUKE ENVTL. L. & POL'Y F. 49, 54–61 (2010). Typically, water rights are apportioned in the eastern United States based on common law riparian rights, wherein property owners of riparian land have rights to a reasonable use limitation of water from the abutting water body, which is also called the American Rule. *Id.* at 62.

63. Craig, *supra* note 28, at 57. Typically, water rights are apportioned in the western United States under prior appropriation, a first-in-time, first-in-right scheme under which appropriators are also subject to requirements of reasonable and beneficial use. *Id.* at 57.

64. *See, e.g.*, South Carolina v. North Carolina, 558 U.S. 256 (2010); Nebraska v. Wyoming, 515 U.S. 589 (1995); Colorado v. New Mexico, 459 U.S. 176 (1982).

65. 206 U.S. 46 (1907).

66. *Id.* at 46.

> [T]he diminution of the flow of water in the river by the irrigation of Colorado has worked some detriment to the southwestern part of Kansas, and yet when we compare the amount of this detriment with the great benefit which has obviously resulted in the counties in Colorado, it would seem that equality of right and equity between the two States forbids any interference with the present withdrawal of water in Colorado.[67]

The Court thus effectively made a state's successful economic development relative to its coriparian state a major factor in how water is apportioned between the states. Interstate water apportionment, at least in the early days of the Court's equitable apportionment decisions, thus depended on states effectively outstripping their neighbors economically. If a state wanted the Court to allocate it more water, it needed to show it could make better economic use of that water than its neighbors.

Thus, a state's return on its investment in water development relative to its neighbor became a key component to interstate water law, effectively elevating state policy and interstate competition above national policies.[68] A state could position itself to assume a greater apportionment of shared waters simply by enacting policies that garnered a higher return on water investments relative to its neighbors. This early elevation of state water policy was further cemented by the Supreme Court's decision in *Bean v. Morris*.[69] In *Bean*, Justice Oliver Wendell Holmes applied state law—in particular, the doctrine of prior appropriation—to decide an interstate water dispute.[70] Holmes' rationale for using state law in an interstate water dispute was that both states in *Bean* implemented a form of prior appropriation, and thus could not fairly deny priority based on prior appropriation when both were bound by similar "first-in-time, first-in-right" law.[71] In *Wyoming v. Colorado*, the Court further cemented the *Bean* approach of applying state law to interstate disputes when states shared basic similarities in water rights law.[72] There, the Court again applied principles of prior appropriation law to decide a dispute between two prior appropriation states.[73]

67. *Id.* at 113–14.
68. For a discussion on international transboundary competitiveness in the environmental sustainability context, see Edith Brown Weiss, *Environmentally Sustainable Competitiveness: A Comment*, 102 YALE L.J. 2123 (1993).
69. 221 U.S. 485 (1911).
70. *Id.* at 486–88; *see also* Robert Glennon & Jacob Kavkewitz, *"A Smashing Victory"?: Was* Arizona v. California *a Victory for the State of Arizona?*, 4 ARIZ. J. ENVTL. L. & POL'Y 1, 24 (2013); Tarlock, *supra* note 59, at 395.
71. Glennon & Kavkewitz, *supra* note 70, at 24.
72. 259 U.S. 419 (1922).
73. *Id.* at 465–70; *see also* Glennon & Kavkewitz, *supra* note 70, at 6.

These early cases developed a strong state-centric approach to interstate water law, grounded in the state sovereignty concerns embodied in the equal footing doctrine, the preference for state water law under *Bean*, and the elevation of state economic policy embodied in the Court decision in *Kansas*. The focus on states' rights over national policy in these early interstate water disputes mirrors the early years of developing the state-federal relationship and U.S.-style federalism. Protection of states' rights was more than a mere political necessity to ratify the Constitution; it was also seen as a means for protecting individual freedoms and devolving power to avoid an excessively powerful national government.[74]

This early state-centric approach was problematic, as national interests were not always consistent with state interests, and interstate water disputes could not always be readily resolved by the Supreme Court applying what it perceived to be shared legal principles.[75] Even states sharing similar foundational principles of water rights law (like prior appropriation) can have dramatically different policy aims, economic and ecologic concerns, and means of implementing water rights.[76] A facile application of shared principles, as in *Bean*, became increasingly problematic as state water rights law became ever more distinct, complicated, and aimed specifically at unique local hydrologic and economic conditions.[77] Giving precedence to state law, state economic growth policies, interstate competition, and state sovereignty also encouraged states to externalize the costs of water scarcity and water pollution to neighboring states.[78] Furthermore, a focus on state water rights regimes and state economic issues often excluded consideration of the sovereignty and water rights held by Native American tribes in transboundary rivers, to whom the federal government owes a fiduciary obligation.[79] To avoid or mitigate interstate water disputes, to more fully integrate all stakeholders in water

74. John C. Yoo, *Sounds of Sovereignty: Defining Federalism in the 1990s*, 32 IND. L. REV. 27, 28 (1998).

75. *See* Dellapenna, *supra* note 35, at 830 (stating that resolving issues in the Apalachicola-Chattahoochee-Flint River Basin was difficult because "the Florida and Georgia governments had such diametrically opposed agendas for the river").

76. *See* Craig, *supra* note 28, at 71–72.

77. *See, e.g.*, Gregory J. Hobbs, Jr., *Eighth Update to Colorado Water Law: An Historical Overview*, 16 U. DENV. WATER L. REV. 137 (2012).

78. *See* Rachel Kastenberg, *Closing the Liability Gap in the International Transboundary Water Pollution Regime Using Domestic Law to Hold Polluters Accountable: A Case Study of* Pakootas v. Teck Cominco Ltd., 7 OR. REV. INT'L L. 322, 333 (2005); Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the "Race-to-the-Bottom" Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210, 1222 (1992) ("The presence of interstate externalities is a powerful reason for interventionat the federal level: because some of the benefits of a state's pollution control policies accrue to downwind states, states have an incentive to underregulate.").

79. *See, e.g.*, Seth Davis, *Tribal Rights of Action*, 45 COLUM. HUM. RTS. L. REV. 499, 507–09 (2014). *But see* Winters v. United States, 207 U.S. 564 (1908).

policy decisions, and to achieve regional and national policy aims, a new national approach to governing interstate water developed.

B. The Federal-Centric Approach to Spillover Commons

The state-centric approach to interstate water law gradually gave way to, or at least began to coexist with, an alternative approach with a strong federal law component driven by national, rather than state, interests. For example, the role of state law was ultimately downgraded from controlling in cases like *Bean* and *Wyoming* to a "guiding principle" in the Court's decision in *Nebraska v. Wyoming*.[80] The Court considered shared principles of state water rights law alongside other considerations that were unique to the Supreme Court's equitable apportionment jurisprudence.[81] By supplementing considerations of state law and state economic conditions with factors deemed relevant by the federal judiciary, the Court placed national water policy aims as a central element when resolving interstate water disputes.

Even more significant than the changes to the Court's equitable apportionment jurisprudence was the rise of Congressional apportionment of transboundary waters. The Boulder Canyon Project Act (BCPA) was passed by Congress in 1928.[82] This Act authorized the states of the lower Colorado River basin to apportion water from the river through compact, with 4.4 million acre-feet allocated to California and authorized the construction of the Hoover Dam and the All-American Canal to bring irrigation water to the Imperial Valley.[83] The BCPA was intended to forestall a protracted dispute between Arizona and California over apportionment of the Colorado River, but it instead precipitated the near crisis involving National Guard troops and the Parker Dam, and it ultimately resulted in one of the seminal Supreme Court decisions in interstate water law, *Arizona v. California*.[84]

The BCPA would not be the last time Congress interceded in an interstate water dispute. Longstanding disputes between California, Nevada, and the Lake

80. 325 U.S. 589 (1945); *see also* Glennon & Kavkewitz, *supra* note 70, at 25.

81. *Nebraska*, 325 U.S. at 618. These considerations include "physical and climactic conditions, the consumptive use of water in the several sections of the river, the character and rate of return flows, the extent of established uses, the availability of storage water, the practical effect of wasteful uses on downstream areas, [and] the damage to upstream areas as compared to the benefits to downstream areas if a limitation is imposed on the former." *Id.*

82. Boulder Canyon Project Act, ch. 42, §1, 45 Stat. 1057 (1928) (codified at 43 U.S.C. § 617–617u (2012)).

83. *Id.*

84. 373 U.S. 546 (1963). *See generally* Glennon & Kavkewitz, *supra* note 70, at 13–17; Patashnik, *supra* note 61.

Paiute Tribe over the Truckee River Basin were settled in the 1990 Truckee-Carson-Pyramid Lake Water Rights Settlement Act.[85] As is typical in many water disputes, contention over the Truckee basin arose because heavily subsidized water was being delivered to farms for large-scale irrigation, impacting tribal and urban domestic water uses.[86] Because state policies arguably failed to adequately account for these uses, tribal and urban stakeholders resorted to seeking federal intervention. The success of these stakeholders at the federal level, where they had been unsuccessful at the state level, can be partially attributed to their reliance on federal environmental protection statutes as a means of circumventing state water rights.[87]

Congressional acts like those in the Colorado and Truckee basins are not the only ways in which the federal government has assumed a larger role in interstate water management. The Tennessee Valley Authority (TVA) is a federally owned corporation managing hydroelectric and flood control facilities, and thus water resources, shared between Tennessee, Alabama, Mississippi, Kentucky, Georgia, North Carolina, and Virginia.[88] TVA represents a major assertion of federal power over interstate waters, leading to significant improvements in public health, access to energy, and water storage, but it also represents a major encroachment upon the traditional function of state governments in apportioning water. TVA can be seen as a case study on the need for local expertise in assessing the biological impacts to endangered species and in conducting cultural surveys to protect Native American artifacts and burial sites.[89] A need for greater localized expertise often arises when federal agencies assert significant control over interstate water management, for example, whenever federal agencies operate or license dams on interstate rivers.[90]

For example, the U.S. Army Corps of Engineers (the Corps) manages the system of dams along the Missouri River shared by Montana, North Dakota,

85. Pub. L. No. 101-618, 104 Stat. 3289, 3294–3324 (1990); *see also* A. Dan Tarlock, *The Creation of New Risk Sharing Water Entitlement Regimes: The Case of the Truckee-Carson Settlement*, 25 ECOLOGY L.Q. 674 (1999).

86. Tarlock, *supra* note 85, at 677.

87. *Id.* at 680–81.

88. Tennessee Valley Authority Act of 1933, 16 U.S.C. §§ 831–831ee (2012); *see also* Robert W. Adler, *Addressing Barriers to Watershed Protection*, 25 ENVTL. L. 973 (1995).

89. The Tennessee Valley Authority (TVA) has the ultimate authority to resolve all issues involving water rights in the Tennessee River's watershed under 16 U.S.C. § 831; *see also* Kristen A. Carpenter, Sonia K. Katyal, & Angela R. Riley, *In Defense of Property*, 118 YALE L.J. 1022 (2009); Henry J. Friendly, *Federalism: A Foreword*, 86 YALE L.J. 1019 (1977); Richard J. Lazarus, *Restoring What's Environmental About Environmental Law in the Supreme Court*, 47 UCLA L. REV. 703 (2000).

90. *See, e.g.*, Michigan v. U.S. Army Corps of Eng'rs, 667 F.3d 765 (7th Cir. 2011); North Carolina v. Fed. Energy Regulatory Comm'n, 112 F.3d 1175 (D.C. Cir. 1997).

South Dakota, Nebraska, Iowa, Kansas, and Missouri.[91] In the summer of 2011, heavy rainfalls overwhelmed the flood control system on the Missouri River.[92] In response, the Corps followed its Master Manual in releasing water from dams and detonating a levee to release floodwaters to avoid damage to other downstream resources.[93] The releases destroyed roads and bridges, trapped underground miners, and resulted in billions of dollars in damage to farmland and infrastructure.[94] State governments, municipalities, farmers, and industry groups complained that the Corps' management system lacked flexibility and a nuanced understanding of the relative value of the resources it sacrificed compared to those it saved.[95] The Missouri River flooding illustrated how a federal-centric approach to interstate water law may avoid fruitless efforts to reconcile conflicting state laws and priorities, but at the cost of flexibility and nuance achieved through input and expertise at the local and regional level.

The Goldilocks governance challenge of scaling jurisdiction in river basins is a manifestation of the larger federalism debate. Just as the early state-centric approach to interstate water disputes mirrored early understanding of the nature of U.S. federalism, so the subsequent growing influence of the federal government in interstate water apportionment mirrored a growing trend in recognizing a broader regulatory role for the national government.[96] But just as the state-centric approach could prove too narrow and exclusive, the federal-centric approach often fails to adequately consider local conditions and may include too many stakeholders with too many irreconcilable interests and who have attenuated relationships to

91. *See generally* Jay R. Lund & Inês Ferreira, *Operating Rule Optimization for Missouri River Reservoir System*, 122 J. WATER RESOURCES PLAN. & MGMT. 287, 287–89 (1996).

92. *See* Lauren Morello, '*Unprecedented*' *Summerlong Flood Threatens Missouri River Dams and Levees*, N.Y. TIMES (June 7, 2011), http://www.nytimes.com/cwire/2011/06/07/07climatewire-unprecedented-summerlong-flood-threatens-mis-68968.html.

93. David Hendee, *Missouri River Flood Closes 100 Miles of Bridges*, REUTERS (June 20, 2011, 7:50 PM), http://www.reuters.com/article/2011/06/20/us-flooding-plains-idUSTRE75H1SX20110620; A.G. Sulzberger & John Schwartz, *A Levee Breached, and New Worries Downstream*, N.Y. TIMES (May 3, 2011), http://www.nytimes.com/2011/05/04/us/04flood.html.

94. Hendee, *supra* note 93; Sulzberger & Schwartz, *supra* note 93; *see also* Alexa Roggenkamp, *Flooding on the Missouri River: How the Missouri Water System Could Benefit From a River Basin Commission*, 37 WM. & MARY ENVTL. L. & POL'Y REV. 593, 596–97 (2013).

95. *See* Victor B. Flatt & Jeremy M. Tarr, *Adaptation, Legal Resiliency, and the U.S. Army Corps of Engineers: Managing Water Supply in a Climate-Altered World*, 89 N.C. L. REV. 1499, 1547–48 (2011); *see also* Roggenkamp, *supra* note 94, at 599.

96. *See* Yoo, *supra* note 74, at 30; *see also* Herbert Hovenkamp, *Judicial Restraint and Constitutional Federalism: The Supreme Court's* Lopez *and* Seminole Tribe *Decisions*, 96 COLUM. L. REV. 2213, 2233–36 (1996) (discussing the historic interpretation of "commerce" under the U.S. Constitution and how that interpretation has changed the regulatory role of the federal government); Erin Ryan, *Federalism and the Tug of War Within: Seeking Checks and Balance in the Interjurisdictional Gray Area*, 66 MD. L. REV. 503, 539–67 (2007).

local ecologic and economic conditions.[97] Such a broad collection of stakeholders, many with interests and knowledge remote from those actually living and working within the basin, inevitably increases transaction costs, making collaboration cost-prohibitive.[98]

C. Interstitial Federalism and Spillover Commons

Essentially, the state-centric approach draws the jurisdictional boundaries of water apportionment too narrowly, and the federal-centric approach draws them too broadly.[99] River basin management is the quintessential Goldilocks governance challenge. If the boundaries are drawn too narrowly, states can externalize the costs of water scarcity and pollution to neighboring states and exclude essential stakeholders, including Native American tribes and federal agencies.[100] If the boundaries are drawn too broadly, the jurisdiction includes too many stakeholders with too many remote interests, thus unnecessarily increasing transaction costs.[101] These stakeholders may lack an appreciation for unique regional population growth challenges, hydrogeochemical conditions, climatological or hydrological variability, or cultural attitudes toward water use. To avoid these pitfalls, the jurisdictional boundaries of water governance should mirror the watershed to comply with the cost internalization prescription for government jurisdiction.[102]

97. *See* Jody Freeman & Daniel A. Farber, *Modular Environmental Regulation*, 54 DUKE L.J. 795, 806–10 (2005).

98. *See, e.g.*, Dennis D. Hirsch, *In Search of the Holy Grail: Achieving Global Privacy Rules Through Sector-Based Codes of Conduct*, 74 OHIO ST. L.J. 1029, 1064 (2013) (noting the role of high transaction costs associated with diverse and wide-ranging stakeholders in the process of negotiating codes governing online privacy); Thomas W. Merrill, *The Property Strategy*, 160 U. PA. L. REV. 2061, 2086–87 (2012) (noting the efficiencies gained by reducing transaction costs by narrowing the scope of stakeholder involvement in decisionmaking).

99. Abrams, *supra* note 52, at 10435 (2012) (noting the "heavy-handed influence" of the federal government, but also "the geopolitical reality that many of the managed water courses are shared among states whose desired management objectives are not always fully compatible," and arguing for a "correction of the mismatch between states and federal power" over water resources).

100. Robert L. Glicksman & Richard E. Levy, *A Collective Action Perspective on Ceiling Preemption by Federal Environmental Regulation: The Case of Global Climate Change*, 102 NW. U. L. REV. 579, 594 (2008); *see* Coase, *supra* note 6.

101. Marco Schäferhoff et al., *Transnational Public-Private Partnerships in International Relations: Making Sense of Concepts, Research Frameworks, and Results*, 11 INT'L. STUDIES REV. 451, 459 (2009); *see* Coase, *supra* note 6.

102. A watershed is the boundary between catchments, or basins. A catchment, or basin, is the area providing runoff and stream flow to a main stream and tributaries. *See generally* J.A. Stanford & J.V. Ward, *Management of Aquatic Resources in Large Catchments: Recognizing Interactions Between Ecosystem Connectivity and Environmental Disturbance*, *in* WATERSHED MANAGEMENT: BALANCING SUSTAINABILITY AND ENVIRONMENTAL CHANGE 91, 93 (Robert J. Naiman ed., 1992).

In effect, the river is a crack between two levels of jurisdiction, the site at which spillover commons spill over. The crack is sealed by tailoring jurisdictional boundaries to the geographic contours of the problem—in other words, through interstitial federalism.

Both the state-centric and federal-centric approaches fail to adequately seal the jurisdictional crack. The Supreme Court has recognized the limitations of both approaches. In another interstate water dispute between Colorado and Kansas, the Court, in an attempt to defer to state water law, noted that interstate stream adjudications "involve the interests of quasi-sovereigns, present complicated and delicate questions, and, due to the possibility of future change of conditions, necessitate expert administration rather than judicial imposition of a hard and fast rule."[103] One of the chief concerns of the Court was thus state sovereignty and the ability of states to address unique and changing conditions. In the case of equitable apportionment, interstate water law relies on a federal entity applying federal law to an interstate problem, but the federal entity is inevitably faced with concerns involving state sovereignty and local conditions. It is the classic Goldilocks challenge calling for interstitial federalism. The Court, recognizing this tension, goes on to say:

> Such controversies may appropriately be composed by negotiation and agreement, pursuant to the compact clause of the federal Constitution. We say of this case, as the court has said of interstate differences of like nature, that such mutual accommodation and agreement should, if possible, be the medium of settlement instead of invocation of our adjudicatory power.[104]

In effect, the Court calls for the implementation of interstitial federalism to govern spillover commons—redrawing jurisdictional boundaries to internalize costs and integrate stakeholders.[105]

Interstitial federalism is achieved in interstate water law when states sharing a transboundary river enter into an interstate compact and establish an interstate commission to govern the spillover commons. A compact is a contract between states, subject to Congressional approval.[106] This is the constitutional mechanism

103. Colorado v. Kansas, 320 U.S. 383, 392 (1943); *see also* Nebraska v. Wyoming, 325 U.S. 589, 616 (1945).

104. *Colorado*, 320 U.S. at 392.

105. *See* Erin Ryan, *Negotiating Federalism*, 52 B.C. L. REV. 1, 130 (2011) (describing broadly the phenomena of interjurisdictional cooperation as "negotiated federalism").

106. Article I, Section 10, Clause 3 of the U.S. Constitution provides that "No State shall, without the Consent of Congress . . . enter into any Agreement or Compact with another State, or with a foreign Power." *See also* Texas v. New Mexico, 482 U.S. 124, 128 (1987); Noah D. Hall &

facilitating interstitial federalism.[107] Compacts are usually negotiated by governors and other state officials with involvement from relevant federal legislators and agencies, and once effective, have the force and supremacy of federal law enforceable in federal court.[108] The compact typically establishes a governing commission to implement its terms.[109]

The interstitial federalism approach to interstate water management has not evolved in a strictly linear way from state-centric to federal-centric to interstitial federalism. For example, the Boulder Canyon Project Act (BCPA), an example of the federal-centric approach, was enacted to facilitate the Colorado River Compact, signed in 1928.[110] As such, a federal-centric approach (the BCPA) followed a more regional approach (the Colorado River Compact). Central aspects of the state-centric approach, including the equal footing doctrine and the use of state law as a guiding principle in equitable apportionment, remain important elements of the Supreme Court's water law jurisprudence.[111] Indeed, governance over transboundary rivers by interstate river basin commissions remains relatively rare.[112] So, while there has been a rough evolution from state-centric to federal-centric to interstitial federalism in both interstate water law and federalism generally, this evolution has occurred in fits and starts, with strong elements of each approach remaining relevant at each respective stage of development.

Unlike the state-centric and federal-centric approaches, the interstitial federalism approach to interstate water law has not been mirrored by trends in the broader understanding of federalism. To the contrary, broader discussion of federalism seems stifled in an ongoing tension between a federal-centric approach and what has been called new federalism, which is a renewed aim for distinct

Benjamin L. Cavataro, *Interstate Groundwater Law in the Snake Valley: Equitable Apportionment and a New Model for Transboundary Aquifer Management*, 2013 UTAH L. REV. 1553, 1570–72.

107. Dellapenna, *supra* note 35, at 832 ("The drafters of the Constitution recognized that the federal government could not be expected to cope with every problem transcending the boundaries of a single state, particularly if the problem affected only a few states as opposed to the nation as a whole.").

108. *See* Cuyler v. Adams, 449 U.S. 433, 438 (1981); Hall & Cavataro, *supra* note 106, at 1570; Jill Elaine Hasday, *Interstate Compacts in a Democratic Society: The Problem of Permanency*, 49 FLA. L. REV. 1, 12–14 (1997).

109. Robin Kundis Craig, *Constitutional Contours for the Design and Implementation of Multistate Renewable Energy Programs and Projects*, 81 U. COLO. L. REV. 771, 826 (2010).

110. *See* Boulder Canyon Project Act, ch. 42, §1, 45 Stat. 1057 (1928) (codified at 43 U.S.C. § 617–617u (2012)); *see also* Colorado River Compact, 70 Cong. Rec. S324 (daily ed. Dec. 10, 1928); Arizona v. California, 373 U.S. 546, 556–57 (1963) (noting that the Boulder Canyon Project Act (BCPA) was intended to prevent conflicts which would "hold up or prevent the tremendous benefits expected from extensive federal development of the river").

111. *See* Montana v. Wyoming, 131 S. Ct. 1765, 1771 n.4 (2011).

112. Robert W. Adler, *Balancing Compassion and Risk in Climate Adaptation: U.S. Water, Drought, and Agricultural Law*, 64 FLA. L. REV. 201, 245 (2012).

spheres of state-centric regulation.[113] This binary understanding of federalism, frequently referred to as dual federalism, persists partly because questions of appropriate jurisdictional scaling arise—most obviously—in cases involving spillover commons.[114] Interstitial federalism could represent a way forward not only for interstate water law, but also for other situations where jurisdictional boundaries must be tailored to problems that involve spillover commons.[115]

Interstitial federalism is distinct from other nonbinary conceptions of federalism, as well.[116] Cooperative federalism occurs when a federal agency, using congressionally granted authority, delegates the implementation of a federal statute to a state agency—subject to continued federal oversight.[117] The jurisdictional boundaries remain effectively unchanged; the federal government simply avails itself of state resources and expertise.[118] Interstitial federalism, on the other hand, redraws jurisdictional boundaries through the interstate compact process in order to be consistent with the geography of spillover goods. Another type of nonbinary federalism, horizontal federalism, occurs when states police and influence one

113. *See* Ryan, *supra* note 96, at 567–96.

114. *See id.*; *cf.* Ryan, *supra* note 105 (providing a broader discussion of "negotiated federalism" as an alternative to the "tug-of-war" between state and federal power).

115. *See* Bradley C. Karkkainen, *Biodiversity and Land*, 83 CORNELL L. REV. 1 (1997) (proposing a federal-centric approach to the jurisdictional scaling problems associated with biodiversity protection); *see also* A. Dan Tarlock, *Local Government Protection of Biodiversity: What Is Its Niche?*, 60 U. CHI. L. REV. 555 (1993) (proposing a state-centric approach to the jurisdictional scaling problems associated with biodiversity).

116. For other examples of conceptions of federalism differing from dual federalism, see ERWIN CHEMERINSKY, ENHANCING GOVERNMENT: FEDERALISM FOR THE 21ST CENTURY (2008) (advancing the framework of empowered federalism—strengthening governance structures at appropriate levels, with the national government concentrating on national problems like environmental protection and local governments focusing on local problems like employee protection or consumer privacy); Heather K. Gerken, *Federalism as the New Nationalism: An Overview*, 123 YALE L.J. 1889 (2014) (arguing that state and local platforms connect dissenters to large and powerful networks that fuel national policymaking); Ryan, *supra* note 96, at 644–62 (advocating a "balanced federalism" model aimed at improving interjurisdictional cooperation through localism and subsidiarity-tempered problem solving); Robert A. Schapiro, *Polyphonic Federalism: State Constitutions in the Federal Courts*, 87 CAL. L. REV. 1409 (1999) (using state constitutions and their application to disputes involving the public display of religious symbols as examples of polyphonic federalism—or a federalism involving multiple independent voices rather than a single authoritative voice).

117. *See* Edward L. Rubin & Malcolm Feeley, *Federalism: Some Notes on a National Neurosis*, 41 UCLA L. REV. 903, 933 (1994) (noting that Milton Grodzins described cooperative federalism by invoking "the image of a marble cake, with state and federal power intertwined in innumerable, complex ways").

118. For a critique of cooperative federalism, see Michael S. Greve, *Against Cooperative Federalism*, 70 MISS. L.J. 557, 562 (2000) (arguing that cooperative federalism "can only be understood as an accommodation to interest group demands and to the interests of imperfectly monitored political actors, state and federal").

another.[119] Horizontal federalism has been described as "an approach in which states jointly develop common minimum legal standards (substantive and/or procedural) to manage a shared resource, but leave the individual states with the flexibility and autonomy to administer those standards under state law."[120] Interstitial federalism, on the other hand, places an institution whose jurisdictional scope matches that of the spillover commons as the primary regulatory body, in accordance with the internalization prescription.

Jurisdictional boundaries are tailored for purposes of interstate water law through the interstate compact process, granting jurisdiction to river basin commissions under the compact. While most river basins are not directly governed by an interstate compact, the compact remains an important water governance tool. There are currently thirty-eight interstate river basin compacts that, when taken together, govern the vast majority of both the land mass and population of the United States.[121] In nearly every case, the interstate compact creates an interstate river basin commission.[122] As the product of a regional agreement, state legisla-

119. Issacharaoff & Sharkey, *supra* note 22, at 1356; *see also* Stewart G. Pollock, *Adequate and Independent State Grounds as a Means of Balancing the Relationship Between State and Federal Courts*, 63 TEX. L. REV. 977, 992 (1985) (arguing that horizontal federalism, "a federalism in which states look to each other for guidance, may be the hallmark of the rest of the century").

120. Hall, *supra* note 17, at 406–07. Hall's proposal is actually a hybrid of horizontal federalism and cooperative federalism, whereby the interstate compact institution takes the place of the federal government in delegation and oversight. Hall argues in favor of cooperative horizontal federalism in the case of sharing the Great Lakes. *Id.* at 406.

121. The Interstate Water Apportionment Compacts include: Alabama-Coosa-Tallapoosa River Basin Compact, Animas-La Plata Project Compact, Apalachicola-Chattahoochee-Flint River Basin Compact, Arkansas River Basin Compact, Bear River Compact, Belle Fourche River Compact, Big Blue River Compact, Bi-State Metropolitan Development District Compact, California-Nevada Interstate Compact, Canadian River Compact, Colorado River Compact, Connecticut River Compact, Costilla Creek Compact, Delaware River Basin Compact, Great Lakes Basin Compact, Klamath River Compact, La Plata River Compact, New England Interstate Water Pollution Control Compact, New Hampshire-Vermont Interstate Sewage and Waste Disposal Facilities Compact, Ohio River Valley Water Sanitation Compact, Potomac Valley Compact, Pecos River Compact, Red River Compact, Red River of the North Compact, Republican River Compact, Rio Grande Interstate Compact, Sabine River Compact, Snake River Compact, South Platte River Compact, Susquehanna River Basin Compact, Tennessee River Basin Water Pollution Control Compact, Thames River Flood Control Compact, Tri-State Sanitation Compact, Upper Colorado River Basin Compact, Upper Niobrara River Compact, Wheeling Creek Watershed Protection & Flood Prevention Compact, Yellowstone River Compact. Seven of these compacts were created by federal statute: Bear River, Delaware River, Great Lakes, Potomac, New England, Ohio, and Susquehanna. *Digest of Federal Resource Laws of Interest to the U.S. Fish and Wildlife Service: Interstate Compacts*, U.S. FISH & WILDLIFE SERVICE, http://www.fws.gov/laws/lawsdigest/compact.html (last visited Mar. 15, 2015).

122. *See generally* INTERSTATE COUNCIL ON WATER POLICY, INTERSTATE RIVER BASIN ORGANIZATION SOURCE WATER PROTECTION SURVEY (Feb. 2002), http://www.icwp.org.php53-16.dfw1-2.websitetestlink.com/wp-content/uploads/2013/07/InterstateReport_new.pdf. River basin commissions vary in size and resources, with

tion, and Congressional approval, interstate river basin compacts and their related commissions are unique in that they do not fit nicely into the federal or state categories of the binary view of U.S.-style federalism.[123] Interstate river basin commissions thus lie in the crevices between state and federal government. These commissions are examples of interstitial federalism ripe for examination in order to determine how effectively such institutions address the Goldilocks governance challenge.

II. A CRITIQUE OF THE CURRENT STATE OF INTERSTITIAL FEDERALISM

To solve the Goldilocks challenge of appropriately scaling jurisdiction over spillover commons (like transboundary rivers), interstitial federalism institutions (like river basin commissions) are arguably the way forward. While this approach to spillover commons has not necessarily taken primacy over the state-centric and federal-centric approaches in interstate water law, it is implemented broadly enough to allow for some evaluations of its relative strengths and weaknesses.

This Part provides a critique of the current approach to interstitial federalism as it is used to govern interstate rivers and points out that interstitial federalism suffers from a Goldilocks challenge of its own. Two recent case studies illustrate how granting too much or too little power to a river basin commission can be a path to the kinds of interstate water disputes predicted by Powell and ultimately realized in the Colorado River basin.

A. When Interstitial Federalism Is Too Weak

The Colorado River basin is not the only basin where interstate violence over shared waters has only barely been avoided. In 1931, only four years before the Parker Dam conflict between Arizona and California, Texas and Oklahoma engaged in a bloodless conflict over the Red River; the conflict resulted in the governor of Texas ordering Texas Rangers to defend bridges and the governor of

staffs ranging from one to forty-five, and annual budgets ranging from $20,000 to more than $5.9 million. *Id.* at 18.

123. *See, e.g.*, Blake Hudson, *Reconstituting Land-Use Federalism to Address Transitory and Perpetual Disasters: The Bimodal Federalism Framework*, 2011 BYU L. REV. 1991 (2011) (discussing the role of interstate compacts and regional land use standards as a means of disaster mitigation and noting that such compacts are illustrative of a "horizontal approach" among subnational goverments that is neither purely regional or national in nature); Ernest A. Young, *The Rehnquist Court's Two Federalisms*, 83 TEX. L. REV. 1 (2004) (defining two models of federalism that do not conform to the categorization of either federal or state).

Oklahoma declaring martial law.[124] These disputes appeared so heated at the time that Adolph Hitler believed them to be evidence of U.S. national disunity.[125] Disputes between Oklahoma and Texas over the Red River have continued for decades so that, with apologies to the annual University of Texas versus University of Oklahoma football game, this dispute represents the true Red River Rivalry.[126]

The most recent chapter in the rivalry is the U.S. Supreme Court's decision in *Tarrant Regional Water District v. Herrmann*,[127] issued in June 2013. In that case, Tarrant, a Texas agency with the responsibility of providing water to farms and communities in north-central Texas, filed for a permit from the Oklahoma Water Resources Board (OWRB). The permit would have allowed Texas to divert water from a point along a tributary of the Red River located within Oklahoma and transfer that water across state boundaries into Texas.[128] Oklahoma, Texas, Arkansas, and Louisiana all signed the Red River Compact in 1978 as the governing document for allocating waters from the Red River between the coriparian states, with the Red River Commission acting as the compact's implementing body.[129] While Oklahoma state law generally bars transboundary exports of water from the state, Tarrant argued that the Red River Compact preempted state law and required equal access by all coriparians to up to 25 percent of "excess" waters (or "unallocated waters") located within the tributary reach in question.[130] Tarrant also argued that the Red River Compact's silence with respect to transboundary water transfers implicitly authorized such transfers.[131]

The Supreme Court narrowly construed the provisions of the Red River Compact, refusing to read into its silence on cross-border rights as an implicit guarantee of transboundary water exports.[132] The Court relied on three observations in reaching this conclusion: (1) courts will not hold states to cede sovereignty over natural resources absent clear and express statements within a compact, (2) other interstate river basin compacts have treated cross-border rights with explicit

124. Jerry B. Lincecum, *Red River Bridge War*, *in* FOLKLORE IN MOTION: TEXAS TRAVEL LORE 25, 25–32 (Kenneth L. Untiedt ed., 2007).
125. *See id.* at 32; *see also* BILL CANNON, TEXAS: LAND OF LEGEND AND LORE 39 (2004).
126. *See generally* Scott M. Delaney, *The New Red River Rivalry: Oklahoma's Unconstitutional Attempt to Calm the Waters by Restricting the Sale of Water Across State Lines*, 65 OKLA. L. REV. 351 (2013).
127. 133 S. Ct. 2120 (2013).
128. *Id.* at 2128; *see* Holly Taylor, Tarrant Regional Water District v. Herrmann*: Interpreting Silence in Interstate Water Compacts With Respect to State Boundaries and the Right to Access Water*, 17 U. DENV. WATER L. REV. 138 (2013).
129. *Tarrant*, 133 S. Ct. at 2125; *see also* Act of Dec. 22, 1980, Pub. L. No. 96-564, 94 Stat. 3305. The Red River Commission is made up of representatives from each signatory state.
130. *Tarrant*, 133 S. Ct. at 2129; *see also* Taylor, *supra* note 128, at 143.
131. 133 S. Ct. at 2129.
132. *Id.* at 2132.

language, and (3) the instant parties' course of dealings historically did not treat transboundary water rights as clearly established under the Red River Compact.[133] Thus, *Tarrant* narrowly interpreted the Red River Compact to leave Oklahoma's prohibition against water exports intact. While the decision appeared to be a clear win for Oklahoma, the Court left open the possibility that Texas could seek an accounting of excess, or unallocated, waters from the Red River Commission.[134] If such an accounting were to demonstrate that there was unallocated water, and Oklahoma's prohibition on water exports effectively discriminated against water rights permit applicants from Texas, such discrimination would violate constitutional principles governing interstate commerce.[135]

The U.S. Constitution grants the U.S. Congress the exclusive authority to regulate interstate commerce.[136] This exclusive grant contains an implicit limit on the power of states to interfere with or restrict interstate commerce—what is referred to as the Dormant Commerce Clause.[137] Where a state's regulation discriminates against other states on its face or in effect, the regulation is subject to strict scrutiny upon judicial review.[138] If the regulation is nondiscriminatory, but still burdens interstate commerce, courts apply a less stringent standard, upholding the regulation "unless the burden imposed on [interstate] commerce is clearly excessive in relation to the putative local benefits."[139]

Water is unique in the way the regulation of its movement between states has been treated under the Dormant Commerce Clause.[140] Arid states regularly look to export water from water-rich neighboring states, and those water-rich states regularly put up legal and regulatory barriers to prevent water export.[141] In

133. *Id.* at 2132–36.
134. *Id.* at 2136.
135. *Id.* at 2136–37.
136. U.S. CONST. art. I, § 8, cl. 3.
137. *See, e.g.*, United Haulers Ass'n v. Oneida-Herkimer Solid Waste Mgmt. Auth., 550 U.S. 330, 338 (2007).
138. In *Hughes v. Oklahoma*, the Court stated that "the burden falls on the State to justify [the regulation] both in terms of the local benefits flowing from the statute and the unavailability of nondiscriminatory alternatives adequate to preserve the local interests at stake." 441 U.S. 322, 336 (1979).
139. Pike v. Bruce Church, 397 U.S. 137, 142 (1970).
140. *See generally* Christine A. Klein, *The Dormant Commerce Clause and Water Export: Toward a New Analytical Paradigm*, 35 HARV. ENVTL. L. REV. 131 (2011) (noting the unique obstacles the dormant Commerce Clause poses to water exports).
141. *See* Tarrant Reg'l Water Dist. v. Herrmann, 133 S. Ct. 2120 (2013) (involving a dispute over Texas' contemplated export of water from Oklahoma into arid regions of Texas); *see also* Complaint for Damages at 2–7, Wind River Res., LLC v. Guenther, 2010 U.S. Dist. LEXIS 19104, No. 2:08-cv-00653-KJD-GWF (D. Nev. May 21, 2008).

1908, the Supreme Court upheld New Jersey's ban on water export in *Hudson County Water Co. v. McCarter*.[142] In that case, Justice Holmes stated:

> [F]ew public interests are more obvious, indisputable and independent of particular theory than the interest of. . . a State to maintain the rivers that are wholly within it substantially undiminished, except by such drafts upon them as the guardian of the public welfare may permit for the purpose of turning them to a more perfect use.[143]

Effectively, the Court held that state regulations protecting in-state stream flows from out-of-state appropriators are a valid exercise of a state's police power and consistent with the Dormant Commerce Clause. The Court thus effectively excluded in-stream flow (as opposed to flow appropriated through canals or pipes) from categorization as an "article of commerce."[144]

This holding, however, was thrown into uncertainty in 1982, when the Supreme Court decided *Sporhase v. Nebraska*.[145] In that case, the Court invalidated a Nebraska state restriction on groundwater exports on Dormant Commerce Clause grounds.[146] A farmer owning land straddling the Colorado-Nebraska border sought a permit to withdraw groundwater from his land in Nebraska to irrigate crops located in Colorado.[147] Nebraska denied the permit under a statute granting the state discretion to deny groundwater withdrawal permits that are (1) unreasonable, (2) contrary to groundwater conservation, (3) detrimental to the public welfare, or (4) for export to states that do not grant reciprocal rights to withdraw and export groundwater to Nebraska.[148] The Court upheld denial under the first three justifications, but the requirement for reciprocity was struck down under strict scrutiny as a facially unconstitutional burden on interstate commerce. The *Sporhase* decision raised many questions, including whether it effectively overruled the Court's previous Dormant Commerce Clause decisions upholding water export restrictions, whether the Court would distinguish between surface water and groundwater, and whether *Sporhase* was limited to its particularly sympathetic facts or generalizable to all interstate water export cases.[149]

142. 209 U.S. 349 (1908).
143. *Id.* at 356.
144. *Id.*; *see* Frank J. Trelease, *State Water and State Lines: Commerce in Water Resources*, 56 U. COLO. L. REV. 347, 347 (1985).
145. 458 U.S. 941 (1982).
146. *Id.* at 941–42; *see also* Klein, *supra* note 140, at 132.
147. *Sporhase*, 458 U.S. at 944.
148. *See* NEB. REV. STAT. § 46-613.01 (2010).
149. *See* Christine A. Klein, *The Environmental Commerce Clause*, 27 HARV. ENVTL. L. REV. 1, 46–47 (2003).

In the time leading up to the Court's decision in *Tarrant*, there was speculation that the Court would take the Red River Rivalry case as an opportunity to clarify these questions on the application of the Dormant Commerce Clause to water exports.[150] The Court, however, effectively avoided this question by stating that the only way to know if there are unlawful restrictions on interstate commerce in the Red River basin is for the Red River Commission to account for, and quantify, any unappropriated water.[151]

The Red River Commission, however, has never engaged in such an accounting, in part because member states have not empowered or funded the Commission to do much other than make water management recommendations.[152] As such, the future of the Red River Rivalry involves determining the proper role and funding of an interstate river basin commission. An empowered, well-funded commission might have accounted for unallocated waters and facilitated interstate water sales. Furthermore, the Commission could have provided a forum in which to resolve interstate disputes and manage the river in an integrated, holistic fashion, instead of observing impotently as litigation over protectionist policies that have little to do with the river itself runs on for decades. If the jurisdictional boundaries are drawn consistently with the watershed, and the regulatory authority over the watershed is the interstate commission, then the question of unconstitutional discrimination in interstate commerce vanishes. There can be no violation of the Dormant Commerce Clause when the fundamental regulatory institution is a Congressionally-approved interstate commission. This setup avoids the costly legal uncertainty and potential overprotection of state water resources evident under the Court's current Dormant Commerce Clause jurisprudence regarding interstate waters.

An interstitial federalism approach may thus avoid many of the problems that created, or could be perpetuated in, the *Tarrant* controversy. Properly empowered and funded interstitial federalism institutions avoid the Dormant Commerce Clause question, provide forums for cost-effective dispute resolution, and internalize costs to the appropriately scaled level of jurisdiction. However, the dispute in *Tarrant* raises difficult questions of sovereignty over natural resources (if an

150. *See* Klein, *supra* note 140, at 151; *see also* Mark S. Davis & Michael Pappas, *Escaping the* Sporhase *Maze: Protecting State Waters Within the Commerce Clause*, 73 LA. L. REV. 175 (2012).

151. Tarrant Reg'l Water Dist. v. Herrmann, 133 S. Ct. 2120, 2134 (2013).

152. Marguerite Ann Chapman, *Where East Meets West in Water Law: The Formulation of an Interstate Compact to Address the Diverse Problems of the Red River Basin*, 38 OKLA. L. REV. 1, 98–104 (1985); Victor Flatt & Heather Payne, *Curtailment First: Why Climate Change and the Energy Industry Suggest a New Allocation Paradigm Is Needed for Water Utilized in Hydraulic Fracturing*, 48 U. RICH. L. REV. 829, 848 n.136 (2014); *see* Consent to the Red River Compact, Pub. L. No. 96-564, 94 Stat. 3305 § 11.04 (1980).

interstitial federalism institution is fully empowered); of separation of powers and judicial deference to agency action (in the context of interstate commission decision making); and of the political feasibility needed to empower interstate commissions when there has been contentious interstate collaboration over managing shared waters. Perhaps the Red River dispute could have been avoided with the implementation of a stronger interstitial federalism institution.

The Red River basin is not the only basin to suffer the consequences of weak interstitial federalism institutions. The Republic River Compact—which is headed by the Republic River Compact Administration—allocates water from the Republic River between Colorado, Kansas, and Nebraska.[153] The Administration calculates water supplies and allocations only after states have made use of their allotted shares; nothing in the compact requires states to make up for losses externalized to their neighbors.[154] There is effectively no cause of action in the Compact against a state that takes more than its allotted amount of water.[155] Stronger interstitial federalism would increase the likelihood that the provisions of an interstate compact will be effectively implemented and enforced because the interstate commission would have enforcement authority over states taking more than their allocated amount of water. For example, a fully empowered interstate commission governing the Republic River could fine Nebraska if it took more than its allocated amount, or it could strike down state water statutes it found inconsistent with the requirements of the compact.

B. When Interstitial Federalism is Too Strong

The weakness of the commission under the Red River Compact is typical of other interstate compacts between states in arid regions.[156] The difference in climate and hydrology often leads to differences in spillover commons management. While the challenges of persistent drought and growing population in arid regions leads to predictable disputes like those in the Red River basin, river basin commissions in the eastern United States often have different, but equally frustrating obstacles to those in the arid west. In the west, compacts are typically limited to allocating gross amounts of water between riparian states without any real

153. Lynne Lewis Bennett & Charles W. Howe, *The Interstate River Compact: Incentives for Noncompliance*, 34 WATER RESOURCES RES. 485, 486 (1998).
154. *Id.* at 486.
155. *Id.*
156. *See* Grant Harse, *Nebraska's Costs of Compliance With the Republican River Compact: An Equitable Solution*, 19 KAN. J.L. & PUB. POL'Y 124, 128–30 (2009) (discussing the litigation involving the Republican River Compact).

mechanism for collaborative management, as seen in the *Tarrant* dispute.[157] In the east, compacts focus on collaborative management, but are typically limited to imposing information sharing and consultation obligations.[158] One of the rare exceptions to this very loose form of interstitial federalism provides the second example of the challenges of interstitial federalism—challenges that arise even when the interstitial federalism institution is uniquely powerful.

This second example is the ongoing controversy over hydraulic fracturing in the Delaware River basin.[159] The states sharing the Delaware River basin—Delaware, New Jersey, New York, and Pennsylvania—signed the Delaware River Basin Compact in 1961, creating the Delaware River Basin Commission (DRBC).[160] The DRBC is a uniquely powerful entity, wholly different from the Red River Commission. It is not limited to setting management goals, accounting for water allocations, and making recommendations; instead it has regulatory, permitting, and enforcement authority. The DRBC has been called "one of the most powerful regional agencies ever created."[161]

In 2009, the DRBC issued a moratorium on the use of water within the Delaware River basin for hydraulic fracturing.[162] Hydraulic fracturing, or fracking, is a method of producing natural gas where fluids are injected into deep shale formations at high pressure causing these formations to fracture; this allows for recovery of vast and otherwise inaccessible sources of natural gas.[163] Fracking has become a widely used but controversial means of securing U.S. energy independence, with operations across the country including the Monterey shale formation in California, the Bakken shale formation in Montana and North Dakota, the Eagle shale formation in Texas, and the Marcellus shale formation in the Delaware River basin.[164] Fracking is controversial for both water quantity and water quality reasons. Fracking can require between two and four million gallons of water for a single injection well—an enormous amount of water, particularly in areas dealing with water scarcity, like Texas and California.[165] Furthermore, fluids used

157. *See* Dellapenna, *supra* note 35, at 831.
158. *Id.*
159. *See* Delaware River Basin Compact, Pub. L. No. 87-328, 75 Stat. 688 (1961); Urbina, *supra* note 19.
160. Delaware River Basin Compact § 1.
161. JOSEPH L. SAX ET AL., LEGAL CONTROL OF WATER RESOURCES, CASES AND MATERIALS 854 (4th ed. 2006).
162. Robin Kundis Craig, *Hydraulic Fracturing (Fracking), Federalism, and the Water-Energy Nexus*, 49 IDAHO L. REV. 241, 251–52 (2013).
163. *Id.* at 242, 245.
164. *Id.* at 243.
165. *Id.* at 252; *see also* Amy Hardberger, *Powering the Tap Dry: Regulatory Alternatives for the Energy-Water Nexus*, 84 U. COLO. L. REV. 529, 544–48 (2013).

in fracking operations often contain potentially hazardous chemicals, like benzene and formaldehyde, which can threaten groundwater quality.[166] Concerns over impacts to groundwater quality have been particularly pronounced within the Delaware River basin, leading to the DRBC's 2009 moratorium.[167]

In November of 2011, the DRBC proposed regulations to end its moratorium on fracking within the Delaware River basin in the face of mounting pressure from the oil industry, legislators, and representatives of some of the commission's member states.[168] The DRBC, which consists of the governors of the four river basin states and a representative from the U.S. Army Corps of Engineers (the Corps), postponed the vote on its proposed rules in response to Delaware Governor Markell's announcement that he would vote against lifting the moratorium.[169] Furthermore, the State of New York filed two different lawsuits against the Corps and the DRBC, claiming that the DRBC did not conduct an environmental review before proposing the regulations as required by the National Environmental Policy Act of 1969 (NEPA).[170] The U.S. District Court for the Eastern District of New York dismissed these claims on ripeness grounds, because the proposed rules were still in a preliminary stage of development at the time of the decision.[171]

The fracking controversy in the Delaware River basin raises several issues regarding how the law treats interstate river basin commissions. First, one particularly difficult question for interstitial federalism institutions is the applicability of NEPA, a statute imposing procedural environmental due diligence requirements on all major federal actions, to an interstate commission.[172] While NEPA would likely be held applicable to river basin commissions—given that the statute is approved by Congress, includes federal agencies as members, and has preemp-

166. Rhett B. Larson, *Reconciling Energy and Food Security*, 48 U. RICH. L. REV. 929, 944 (2014); *see also* Craig, *supra* note 162, at 246.

167. *See* Craig, *supra* note 162, at 252; *see also* Mark Squillace & Alexander Hood, *NEPA, Climate Change, and Public Lands Decision Making*, 42 ENVTL. L. 469, 505–06 (2012).

168. Elizabeth Burleson, *Cooperative Federalism and Hydraulic Fracturing: A Human Right to a Clean Environment*, 22 CORNELL J.L. & PUB. POL'Y 289, 315–16 (2012); *see also* Elisabeth N. Radow, *Homeowners and Gas Drilling Leases: Boon or Bust?*, N.Y. ST. B.A. J., Nov./Dec. 2011, at 10, 19.

169. *See* Sorell E. Negro, *The Thirst of Fracking: Regulating to Protect the Linchpin of the Natural Gas Boom*, 77 ALB. L. REV. 725, 746 (2014); Bryan Walsh, *Political Fractures Over Fracturing*, TIME (Nov. 21, 2011), http://science.time.com/2011/11/21/political-fractures-over-fracking. *See generally* Lynn Kerr McKay et al., *Science and the Reasonable Development of Marcellus Shale Natural Gas Resources in Pennsylvania and New York*, 32 ENERGY L.J. 125 (2011).

170. *See* Lawrence Hurley, *N.Y. Natural Gas Fracking Lawsuit Raises NEPA Questions*, N.Y. TIMES (June 1, 2011), http://www.nytimes.com/gwire/2011/06/01/01greenwire-ny-natural-gas-fracking-lawsuit-raises-nepa-qu-12192.html. *See generally* McKay et al., *supra* note 169.

171. Smythe & Kary, *supra* note 19.

172. 42 U.S.C. § 4321 (2012); *see also* Burleson, *supra* note 168, at 309–10.

tory authority over state law—the question alone illustrates the unique challenge of how and when to apply federal requirements to interstitial federalism institutions.[173] While these institutions may seem at first blush to fall within national rather than state jurisdiction, water law has traditionally been the purview of the state, and interstitial federalism institutions often lack the resources and procedural familiarity necessary to effectively comply with federal law like NEPA.[174]

Second, the fracking controversy in the Delaware River basin raises the issue of whether and to what degree courts ought to defer to interstitial federalism institutions' interpretations of law, including interstate compact provisions. Typically, courts defer to federal agencies' interpretations of the statutes those agencies implement, so long as the agency interpretation is consistent with express Congressional direction.[175] In the absence of clear Congressional direction, the agency interpretation is deemed reasonable.[176] Federal courts, however, may not be similarly deferential to state agencies, and state courts vary widely in the degree of deference they afford their own agencies' interpretations of law.[177] The degree to which courts should defer to state agencies' interpretations of statutes that were cooperatively implemented with federal agencies is the subject of speculation and dispute among authorities.[178]

Interstitial federalism institutions are unique in that they are neither state nor truly federal agencies. Additionally, they do not function like state agencies operating within a cooperative federalism framework, under which the federal government delegates states the authority to implement certain portions of a federal

173. *See* Dellapenna, *supra* note 35, at 834 ("[B]ecause any governing board or commission derives its authority from a federal statute, the board or commission is considered a federal agency for purposes of the [NEPA] . . . ."); *see also* Del. Water Emergency Grp. v. Hansler, 536 F. Supp. 26 (E.D. Pa. 1981); Bucks Cnty. Bd. of Comm'rs v. Interstate Energy Co., 403 F. Supp. 805, 808 (E.D. Pa. 1975). *But see* Howard A. Learner, *Restraining Federal Preemption When There Is an "Emerging Consensus" of State Environmental Laws and Policies*, 102 NW. U. L. REV. 649 (2008).

174. *See* Abrams, *supra* note 52, at 10448 ("Moving to a basin-level focus tends toward devolution away from the center toward the state and regional level, which parallels the constitutionally drawn division of sovereign authority over water resources themselves. States make water law, not the federal government."); *see also* New Jersey v. New York, 283 U.S. 336 (1931); Craig, *supra* note 162, at 260.

175. Chevron U.S.A., Inc. v. Natural Res. Def. Council, Inc., 467 U.S. 837 (1984).

176. *Id.*; *see also* William N. Eskridge, Jr. & Lauren E. Baer, *The Continuum of Deference: Supreme Court Treatment of Agency Statutory Interpretations From* Chevron *to* Hamdan, 96 GEO. L.J. 1083, 1086 (2008).

177. Abbe R. Gluck, *Our [National] Federalism*, 123 YALE L.J. 1996, 2036 (2014); *see also* Ann Graham, Chevron *Lite: How Much Deference Should Courts Give to State Agency Interpretation?*, 68 LA. L. REV. 1105 (2008).

178. *See generally* Joshua D. Sarnoff, *Cooperative Federalism, the Delegation of Federal Power, and the Constitution*, 39 ARIZ. L. REV. 205 (1997); Philip J. Weiser, Chevron*, Cooperative Federalism, and Telecommunications Reform*, 52 VAND. L. REV. 1 (1999).

statute.[179] Instead, interstitial federalism institutions are made up of state and federal officials that together implement an interstate compact. It is perhaps because of this unique role that courts have typically been unwilling to do anything other than enforce compacts according to their terms and afford interstitial federalism institutions broad deference.[180] This deference is essentially the offspring of a marriage between federal separation of powers doctrine and state-centric federalism. Courts will not exercise discretion to grant relief from an obligation that an interstate compact imposes on signatory states.[181] Instead, courts narrowly construe the compact (as was the case in *Tarrant*), and where there is any ambiguity, courts grant broad deference to the implementing commission (even if the commission's interpretation results in the commission refusing to act, as was the case when the Red River Commission did not account for unallocated water in *Tarrant*).[182]

Such deference may be defensible on separation of powers or federalism grounds, but it may not satisfy the justifications often given for judicial deference to administrative agencies. Courts have traditionally deferred to agency interpretations because agencies have comparatively greater institutional competency in their respective fields than do courts.[183] If the commission is composed primarily of state governors (as is the case with the DRBC) or other public officials lacking expertise relevant to spillover commons management, then the commission may lack such a comparative advantage, thus weakening the rationale for judicial deference to interstate river basin commissions.

Third, the fracking controversy in the Delaware River basin illustrates the importance of establishing within the interstate river basin compact not only remedies against coriparian states, but also possible remedies against the interstate river basin commission itself. It is one thing when Texas wants to sue Oklahoma under the Red River Compact, but it is something else when New York wants to sue the DRBC. In the United States, state governments hold title to water within state boundaries in trust for the benefit of citizens, and they grant

179. The Clean Air Act and the Clean Water Act are examples of cooperative federalism, where the federal government delegates authority to state agencies to implement portions of federal statutes. 42 U.S.C. § 7410 (2012); 33 U.S.C. § 1251 (2012); s*ee also* Sarnoff, *supra* note 178; Weiser, *supra* note 178.

180. *See, e.g.*, Texas v. New Mexico, 462 U.S. 554 (1983).

181. *Id.* at 566; *see also* Hinderlider v. La Plata River & Cherry Creek Ditch Co., 304 U.S. 92, 104–05 (1938).

182. Tarrant Reg'l Water Dist. v. Herrmann, 133 S. Ct. 2120, 2123 (2013).

183. *See, e.g.*, Scott H. Angstreich, *Shoring Up* Chevron*: A Defense of* Seminole Rock *Deference to Agency Regulatory Interpretations*, 34 U.C. DAVIS L. REV. 49, 89–99 (2000); John F. Manning, *Constitutional Structure and Judicial Deference to Agency Interpretations of Agency Rules*, 96 COLUM. L. REV. 612, 629 (1996); Kevin M. Stack, *Interpreting Regulations*, 111 MICH. L. REV. 355, 410–12 (2012).

usufructory water rights to citizens consistent with that trust obligation.[184] What obligation, if any, is owed by an interstitial federalism institution in how it allocates water between members? This is an essential question when some members of a commission could be marginalized. For example, if Pennsylvania wants to develop shale gas, but is effectively precluded from doing so because New York has co-opted the DRBC, what obligation does the DRBC have to demonstrate that it is managing water allocation for the benefit of all member states? In the alternative, if Pennsylvania has coopted the DRBC to lift the moratorium and allow fracking, what are (or should be) New York's rights vis a vis the DRBC?

This problem is perhaps most pronounced in a situation like the Delaware River basin, where the interstitial federalism institution is "one of the most powerful regional agencies ever created."[185] In that case, the interstitial federalism institution begins to usurp state sovereignty without any legal check on an abuse of its power. This problem is even more pronounced when power is asymmetrical between jurisdictions sharing spillover commons (for example, as may be the case between the state of California and some Native American tribes sharing resources in the Colorado River basin).[186] New York's lawsuit against the DRBC raises the question of whether and how marginalized members of an interstitial federalism institution could seek redress where the institution is not managing spillover commons for the benefit of all sharing jurisdictions.

C. When Interstitial Federalism Is Too Narrow

The controversy in the Red River basin provides an example of how a weak interstitial federalism institution has given rise to cost-externalization (with Oklahoma externalizing costs of scarcity to Texas), legal uncertainty and economic protectionism (in light of the Court's Dormant Commerce Clause jurisprudence as applied to interstate waters), and protracted litigation without

184. Abrams, *supra* note 52, at 10437. *See generally* Carol Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. CHI. L. REV. 711 (1986) (discussing the public trust doctrine as a right of access to property); Joseph L. Sax, *The Limits of Private Rights in Public Waters*, 19 ENVTL. L. 473 (1989) (discussing legal developments relating to the public trust and water rights).

185. SAX ET AL., *supra* note 161, at 854; *see also* Dellapenna, *supra* note 35, at 844 (stating that the DRBC has unusually expansive water management authority within the basin). For another example of strong interstitial federalism institutions—at least when compact provisions are enforced in court—see Harse, *supra* note 156.

186. *See* David H. Getches, *Colorado River Governance: Sharing Federal Authority as an Incentive to Create a New Institution*, 68 U. COLO. L. REV. 573, 576–77 (1997) (arguing that allocation of water rights from the Colorado River is "politically inequitable"); David H. Getches, *Competing Demands for the Colorado River*, 56 U. COLO. L. REV. 413, 427 (1985) (noting the priority of California agriculture when allocating the Colorado River's resources).

an effective interstate dispute resolution forum.[187] The controversy in the Delaware River basin provides an example of how interstitial federalism institutions with too much power can be perceived as threats to state sovereignty. It also illustrates how those institutions generate legal uncertainty regarding the applicability of federal procedural statues like NEPA and throw into question the degree of judicial deference courts should afford those institutions. Additionally, the DRBC's regulation of fracking also raises the question of how interstitial federalism institutions should avoid marginalizing members and provide means for members to ensure that spillover commons are managed for the benefit of all.[188]

The Red River basin and Delaware River basin examples also illustrate a Goldilocks challenge. If an interstitial federalism institution has too little power, the basin is likely to face problems like externalities and protectionism, as seen with the Red River basin. If an interstitial federalism institution is too powerful, or if the power asymmetry between members of the institution is too great, then the basin is likely to face problems like member marginalization, as seen with the Delaware River basin. This is effectively a failure to comply with the internalization prescription—to appropriately scale and empower a jurisdiction whose boundaries conform to the geography of the spillover commons. But the failure to comply with the internalization prescription is only one reason interstitial federalism institutions struggle to effectively and equitably manage spillover commons. The other is a failure to effectively integrate within decision making all aspects of the governance of spillover commons. This is the integration prescription for governing spillover commons.

There are three essential considerations for effective spillover commons management: (1) economic integration, (2) sociopolitical integration, and (3) ecological integration. Some spillover commons, like energy and water, become embedded in virtually all goods and services, implicate important and unique sociocultural values, and are essential for ecological health. Thus, management of spillover commons must integrate all these considerations. In water policy in particular, a major aim is to achieve integrated water resource management (IWRM).[189] IWRM is a process requiring coordinated development and management of water across different economic, social, and ecological interests

187. Kirsten H. Engel, *State Environmental Standard-Setting: Is There a "Race" and Is It "to the Bottom"?* 48 HASTINGS L.J. 271, 285 (1997).

188. *See* Jill Elaine Hasday, *Interstate Compacts in a Democratic Society: The Problem of Permanency*, 49 FLA. L. REV. 1, 26 (1997) (noting that state governments make little effort to integrate interstate commissions into their own governance frameworks, leaving the onus on the interstate commission to be inclusive and avoid marginalization of members).

189. Rhett B. Larson, *The New Right in Water*, 70 WASH. & LEE L. REV. 2181, 2229 (2013).

without compromising sustainability and environmental protection.[190] Achieving IWRM necessitates considering the economic value of the spillover commons across its various uses; it also requires considering the sociopolitical nature of the spillover commons, particularly its cultural value and meaning, and the ecological value, which includes its sustainable development and environmental quality. Interstitial federalism often fails, because it fails to effectively integrate these three considerations.

First, interstitial federalism institutions typically fail to adequately integrate the economic considerations of spillover commons. This integration is particularly difficult in transboundary water governance. The difficulty arises because water is required to produce all goods and is therefore embedded in all goods—a concept called "virtual water."[191] For example, the production of one kilogram of rice requires between 1,000 and 3,000 kiloliters of water, and it takes 13,000 to 15,000 liters of water to produce one kilogram of beef.[192] Food and energy in particular are inextricably linked with water management, because both food and energy typically have high virtual water content.[193] The concept of virtual water makes the already ambiguous distinctions in the Court's Dormant Commerce Clause jurisprudence, as applied to interstate water, all the more obtuse. For some reason, water in a river is not an article of commerce, and thus states can enact protectionist policies against its export, but that same water embedded in a head of lettuce or in a kilowatt of electricity is an article of commerce subject to the Dormant Commerce Clause.[194] Interstitial federalism institutions often draw similar and seemingly arbitrary lines in their management decisions. By focusing on raw water apportionment or on information sharing on stream flows, basin commissions may fail to integrate questions of water efficiency in energy production or irrigation. Similar questions of embeddedness and integration may apply to other spillover commons, like energy.[195]

Second, interstitial federalism institutions often fail to properly integrate sociocultural considerations into spillover commons management. This is an especially difficult challenge for water, because water has such unique religious,

190. *Id.* at 2228; *see also* Barton H. Thompson, Jr., *A Federal Act to Promote Integrated Water Management: Is the CZMA a Useful Model?*, 42 ENVTL. L. 201, 212–13 (2012).

191. *See, e.g.*, Allan, supra note 26; J.A. Allan, *Virtual Water — Part of an Invisible Synergy That Ameliorates Water Scarcity*, *in* WATER CRISIS: MYTH OR REALITY? 131 (Peter P. Rogers et al. eds., 2006) (defining virtual water as water embedded in commodities like food, energy, and clothing).

192. *Water Facts and Figures,* INT'L FUND FOR AGRIC. DEV., http://www.ifad.org/english/water/key.htm (last visited Mar. 14, 2015).

193. Larson, *supra* note 166, at 932–35.

194. *See* Davis & Pappas, *supra* note 150, at 189.

195. *See* Larson, *supra* note 166, at 934.

aesthetic, cultural, and recreational values.[196] The challenge of sociocultural integration into water management decisions is exacerbated in the current model of interstitial federalism by a narrow, exclusionary approach to commission membership. For example, Native American tribes are frequently excluded from the negotiation of interstate compacts and from membership in interstate commissions.[197] Native American tribes have a right, implicit in any treaty establishing a reservation, to sufficient water to meet the primary purpose of the reservation, which is to establish a permanent homeland for the tribe.[198] This right is typically quantified based on the amount of "practicably irrigable acreage" of a tribe.[199] In some interstate basins, the quantified rights of tribes can be enormous; the rights of the Navajo Nation in the Colorado River basin are such an example.[200] The exclusion of tribes from the formulation of compacts and commission membership leads to a failure to integrate important political, cultural, economic, and social considerations from a major stakeholder in the basin.[201] Such exclusion leads to poor management decisions and ultimately to costly water rights disputes. The federal government has increasingly played a role in striving to quantify tribal water rights and allowing tribes to settle out of prolonged state general stream adjudications.[202] Yet this federal role arguably draws the jurisdictional boundary too broadly, instead of allowing tribes to effectively collaborate with coriparian jurisdictions at the regional, basin level.

Tribes represent perhaps the largest group not often integrated into interstitial federalism, at least in terms of water rights holders. But other groups are often

196. *See id.* at 949; *see also* Rhett B. Larson, *Holy Water and Human Rights: Indigenous Peoples' Religious-Rights Claims to Water Resources*, 2 ARIZ. J. ENVTL. L. & POL'Y 81 (2011) (arguing that indigenous communities rely on religious freedom rights to protect the waters they consider sacred).

197. *See, e.g.*, Jacqueline Phelan Hand, *Protecting the World's Largest Body of Fresh Water: The Often Overlooked Role of Indian Tribes' Co-Management of the Great Lakes*, 47 NAT. RESOURCES J. 815, 831–32 (2007).

198. *See* Winters v. United States, 207 U.S. 564, 577 (1908); *In re* Gen. Adjudication of All Rights to Use Water in Gila River Sys. & Source, 35 P.3d 68, 71 (Ariz. 2001).

199. Arizona v. California, 373 U.S. 546, 600 (1963); *see also* Robert T. Anderson, *Indian Water Rights, Practical Reasoning, and Negotiated Settlements*, 98 CALIF. L. REV. 1133 (2010).

200. Stanley M. Pollack, *The Navajo Nation New Mexico Water Rights Settlement Agreement—How It Fits Into Interstate Compact Obligations and Affect on Other Water Users in the San Juan River and Colorado River Basins*, *in* 2011 ROCKY MOUNTAIN MINERAL LAW FOUND., NATURAL RESOURCES DEVELOPMENT ON INDIAN LANDS pt. 12-1, pt. 12-1 (2011).

201. *See, e.g.*, Bradley L. Roth, *A Call for Mediated Solutions to Arctic Region Disputes*, 19 CARDOZO J. INT'L & COMP. L. 851, 863–65 (2011) (criticizing the development of international law governing the Arctic for excluding indigenous groups).

202. *See generally* Benjamin A. Kahn, *Sword or Submission? American Indian Natural Resource Claims Settlement Legislation*, 37 AM. INDIAN L. REV. 109, 128–29 (2013) (discussing congressional efforts to settle state claims for tribal water rights).

excluded to the detriment of effective interstitial federalism. Municipalities, including irrigation and water conservation districts, must look to state officials to represent their interests, even where state interests may not be consistent with municipal concerns. Furthermore, nonstate actors, including nongovernmental organizations and public utilities, often play important roles in the development and conservation of water resources in a basin.[203] The exclusion of these stakeholders may lead to a failure to fully integrate the varied social, cultural, and political values placed on spillover commons. This impacts not only management decisions, but also the political legitimacy of interstitial federalism institutions.[204]

Third, interstitial federalism institutions often fail to fully integrate the ecological considerations of spillover commons management. This is particularly true of interstate waters. The federal government administers the Clean Water Act,[205] which applies to all waters of the United States (typically defined to exclude most groundwater).[206] The federal government also administers the Safe Drinking Water Act,[207] which applies to public water systems.[208] However, under both of these acts, the federal government can delegate authority to state agencies to administer components of the statutes, with federal oversight and approval authority. This relationship—delegated federal authority to state agencies for the purpose of administering federal statutes—is commonly referred to as cooperative federalism.[209] Cooperative federalism is not interstitial federalism. No jurisdictional boundaries are drawn to encompass the spillover commons. Instead, a subordinate jurisdiction is delegated a role within a larger jurisdiction's governance responsibilities. Cooperative federalism too often leads to redundant regulation and increased transactions costs from dealing with two levels of gov-

203. *See generally* Caswell F. Holloway et al., *Solving the CSO Conundrum: Green Infrastructure and the Unfulfilled Promise of Federal-Municipal Cooperation*, 38 HARV. ENVTL. L. REV. 335, 357 (2014) (using stormwater pollution rulemaking as an example to illustrate the role of public utilities as stakeholders in water management); Laura Pedraza-Fariña, *Conceptions of Civil Society in International Lawmaking and Implementation: A Theoretical Framework*, 34 MICH. J. INT'L L. 605 (2013) (providing a theoretical framework for understanding the role of nongovernmental organizations in civil society).

204. *See* Robert F. Weber, *New Governance, Financial Regulation, and Challenges to Legitimacy: The Example of the Internal Models Approach to Capital Adequacy Regulation*, 62 ADMIN. L. REV. 783 (2010) (discussing the role of legitimacy in "new governance" theory); *see also* Larson, *supra* note 18, at 794.

205. 33 U.S.C. § 1251 (2012).

206. *Id.*; *see also* Rapanos v. United States, 547 U.S. 715 (2006).

207. 42 U.S.C. § 300f (2012).

208. *Id.*

209. *See, e.g.*, Daniel J. Elazar, *Cooperative Federalism*, *in* COMPETITION AMONG STATES AND LOCAL GOVERNMENTS 65 (Daphne A. Kenyon & John Kincaid eds., 1991).

ernance.[210] For example, to inject hydraulic fracturing fluid into the substratum in New Mexico, the well operator would have to obtain a discharge permit from the Ground Water Quality Bureau of the New Mexico Environment Department under the New Mexico Water Quality Act[211] as well as an Underground Injection Control permit from the U.S. Environmental Protection Agency (EPA) under the federal Safe Drinking Water Act; the EPA could also delegate authority under the Clean Water Act to a New Mexico state agency to regulate water quality issues related to fracking, subject to federal oversight.[212] Rather than integrating water quality with water apportionment into a jurisdiction whose scope is based on the river basin, water quality and water apportionment are bifurcated, with water quality regulation attempting to straddle the boundary line between jurisdictions.

The lack of integration of water quality with water apportionment is particularly problematic in interstate water law. A common refrain that illustrates the relationship between water quantity and water quality is that "the solution to pollution is dilution."[213] Water systems can be remarkably resilient to contamination, but each system has a breaking point—its assimilative capacity, or a level of pollution from which it cannot effectively recover.[214] When riparian states fail to maintain sufficient instream flows, they lower the assimilative capacity of the stream, and thus lower its overall quality.[215] For example, in an equitable apportionment case before the Supreme Court in 1931, New Jersey complained that its upstream riparian neighbor, New York, failed to maintain sufficient instream flows to dilute pollution downstream in the Delaware River basin.[216] The Court held that New York had to maintain a minimum flow rate sufficient to achieve a minimum assimilative capacity for New Jersey pollution.[217] But in the interstitial federalism model, interstate commissions rarely integrate water quality concerns, which remain the purview of collaborative federalism. Interstate commissions continue to either deal in gross water allocations

210. *See, e.g.*, Greve, *supra* note 118, at 612 (providing a critique of the cooperative federalism model).
211. N.M. STAT. ANN. §§ 74-6-1 to -6-17 (2000).
212. The Safe Drinking Water Act, 42 U.S.C. § 300f (2012); Underground Injection Control Program, 40 C.F.R. § 144 (2014); N.M. STAT. ANN § 74-6-5 (2000); N.M. CODE R. § 20.6.2.3106 (LexisNexis 2010).
213. John Copeland Nagle, *Corruption, Pollution, and Politics*, 110 YALE L.J. 293, 324 (2000) (reviewing ELIZABETH DREW, THE CORRUPTION OF AMERICAN POLITICS: WHAT WENT WRONG AND WHY (1999)).
214. Rhett B. Larson, *Orphaned Pollution*, 45 ARIZ. ST. L.J. 991, 1004 (2013).
215. *Id.*
216. New Jersey v. New York, 283 U.S. 336, 343–45 (1931).
217. *Id.* at 345–47.

or in monitoring and information sharing without any integration of water quality concerns.[218]

The failure to integrate ecological concerns in the current model of interstitial federalism is not limited to water quality. For example, the invasive Asian Carp in the Mississippi River and Great Lakes basins represents an enormous ecological threat to the entirety of each basin.[219] Yet the impacts on endangered species in these basins, an inherently regional and transboundary problem, lies outside the jurisdiction of the Great Lakes Commission or any other basin-level governance body.[220] Jurisdiction over endangered species in these basins is either drawn too broadly to minimize transaction costs and to move expeditiously in addressing the imminent threat of Asian Carp, or too narrowly, which leads to the externalities of invasive species in the first place. Thus, the current model of interstitial federalism too often fails to adequately address the Goldilocks governance challenge.

III. REFORMING INTERSTITIAL FEDERALISM INSTITUTIONS

To avoid the Goldilocks governance challenge (drawing jurisdictional boundaries too narrowly creates externalities; drawing them too broadly unduly increases transactions costs), the jurisdictional boundaries for governing spillover commons should be drawn consistently with the geographic contours of these goods—in the case of interstate waters, the boundary should be drawn consistently with the watershed. This internalization prescription for government jurisdiction calls for interstitial federalism, a level of jurisdiction between state and federal levels achieved by establishing interjurisdictional commissions composed of representatives from each state, governed by an interstate compact. However, as illustrated above, the current approach to interstitial federalism for governing spillover commons has failed for two reasons. First, interstitial federalism fails when the institutions governing spillover commons are improperly empowered. When these institutions are weak, there is legal uncertainty, economic protectionism, and cost externalization, as in the Red River basin.[221]

218. *See* Dellapenna, *supra* note 35.

219. *See generally* David A. Strifling, *An Ecosystem-Based Approach to Slowing the Synergistic Effects of Invasive Species and Climate Change*, 22 DUKE ENVTL. L. & POL'Y F. 145 (2011) (discussing the negative effects of invasive species that include ecological and economic impacts); Molly M. Watters, Note, *Fish and Federalism: How the Asian Carp Litigation Highlights a Deficiency in the Federal Common Law Displacement Analysis*, 2 MICH. J. ENVTL. & ADMIN. L. 535 (2013) (discussing threats posed by the Asian carp in the Mississippi River and the Great Lakes).

220. The Endangered Species Act establishes federal jurisdiction over endangered species through the U.S. Fish and Wildlife Service. 16 U.S.C. § 1531(c) (2012).

221. *See supra* Part II.A.

Where these institutions are too strong, there is a concern with states losing sovereignty over natural resources traditionally ascribed to them.[222] The Delaware River basin provides such an example. When there are significant power asymmetries within the institution, there is a question of how marginalized members can seek redress due to inequitable management.

The second problem is that interstitial federalism institutions fail to achieve integrated management of the spillover commons.[223] Spillover commons like water and energy become embedded in the production of goods and services, often have unique sociocultural meaning, and play important roles in the health of ecosystems. When the economic, sociocultural, and ecologic value of spillover commons are not integrated into the management decisions of interstitial federalism institutions, these institutions fail to achieve their primary objectives—to sustainably and equitably develop shared resources and to avoid or mitigate interjurisdictional conflict.

This Part proposes three broad reforms to address the challenges of appropriate empowerment and integrated management in interstitial federalism institutions. First, interstitial federalism institutions should be strengthened and better funded to (1) avoid legal uncertainty by clearly establishing jurisdiction over spillover commons, (2) warrant full judicial deference to the interstitial federalism institutions, and (3) internalize the costs of spillover commons management to a single jurisdictional level.[224] Second, economic, sociocultural, and ecological considerations need to be integrated into spillover commons management, including the concept of shared benefits—that is, jurisdictions should use resources in ways that give each one a comparative advantage and then share the aggregate benefits equitably across political borders.[225] Third, interstitial federalism institutions should adopt a form of fiduciary governance under which they manage shared public goods for the benefit of all member jurisdictions and owe each member a fiduciary duty to manage resources equitably and impartially.[226]

222. *See supra* Part II.B.

223. *See supra* Part II.C.

224. *See* Dellapenna, *supra* note 35, at 833 ("Apart from requiring congressional consent, the Constitution places no limits on what might be done through an interstate compact.").

225. *See generally* Larson, *supra* note 18, at 803–04 (discussing how benefits can be shared across a river basin in which desalination is implemented); Tarlock & Wouters, *supra* note 24, at 529–34 (using the example of the Columbia River Treaty to illustrate how benefits sharing in a river basin is achieved).

226. Larson, *supra* note 27, at 2199 (arguing that the public trust doctrine creates a fiduciary obligation in the state trustee). For an example of the public trust doctrine as a means for judicial intervention in cases involving state management of natural resources, see Joseph L. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471, 489 (1970).

While the illustrative examples relied upon in this Article have been based on interstate water management in the United States, these suggested reforms have the potential to improve transboundary management of spillover commons in many contexts.

A. The Case for Stronger Interstitial Federalism

Strong interstitial federalism meets the aims of the internalization prescription for government jurisdiction. This is because government power is assigned over spillover commons at the smallest level that internalizes the effects of governance choices.[227] If an interstate compact makes the watershed the new regulatory border, and the river basin the new scope of jurisdictional authority, jurisdic-jurisdiction over spillover commons corresponds to the geographic contours of the spillover commons. This will internalize the costs of management decisions to the managing entity. As such, it will be more difficult for states to externalize the costs of water scarcity to downstream neighbors by damming rivers or to externalize the costs of water contamination by allowing pollution to flow downstream because jurisdiction over water resource development will lie primarily with an institution whose jurisdictional scope is the river basin itself. While the watershed makes the obvious jurisdictional boundary, and the catchment the obvious jurisdictional scope, for purposes of water management, jurisdiction over other spillover commons can similarly be made to correspond to their respective geographic contours.[228]

The scaling of jurisdictional boundaries is only part of the challenge of interstitial federalism. The other challenge is to appropriately empower the governing institutions. As noted above, the U.S. Supreme Court's decision in *Tarrant Regional Water District v. Herrmann*[229] illustrates the potential pitfalls of weak interstitial federalism.[230] Oklahoma can externalize the costs of water scarcity to Texas without running afoul of the Dormant Commerce Clause because the Red River Commission has not performed an accounting of unallocated water in the basin.[231] The lack of an accounting suggests that member states have not encouraged,

227. COOTER, *supra* note 12, at 107.
228. *See, e.g.*, William W. Buzbee, *Recognizing the Regulatory Commons: A Theory of Regulatory Gaps*, 89 IOWA L. REV. 1 (2003); Hannah J. Wiseman, *Remedying Regulatory Diseconomies of Scale*, 94 B.U. L. REV. 235, 261–62 (2014).
229. 133 S. Ct. 2120 (2013).
230. *See supra* Part II.A.
231. *Tarrant*, 133 S. Ct. 2120.

funded, or empowered the commission to perform this necessary task.[232] But the Court's avoidance of the Dormant Commerce Clause issue based on the lack of an accounting misses the larger point. There should be no Dormant Commerce Clause issue at all if the fundamental jurisdictional unit is the river basin commission itself, because then the regulating entity is by nature interstate. Weak interstitial federalism raises the Dormant Commerce Clause issue, because the states are the primary jurisdiction, and the commission is either a toothless forum for information sharing or a monitoring entity designed solely to account for gross water deliveries at the boundary line.[233]

Strong interstitial federalism avoids the applicability of the Dormant Commerce Clause and the related possibility of states establishing protectionist policies that interfere with interstate commerce. Similarly, strong interstitial federalism avoids the question of the applicability of federal statutes establishing procedural requirements for the development of natural resources, like the National Environmental Policy Act of 1969[234] or Section 7 of the Endangered Species Act.[235] Strong interstitial federalism institutions founded through Congressionally approved interstate compacts should be subject to federal environmental review and consultation requirements, both because they function under federal approval and because these environmental review processes are already developed. Review processes could be tailored to basin-specific needs, when appropriate, through the compact process.[236] When properly funded, staffed with appropriate experts, and subject to appropriately tailored procedural requirements, these interstitial federalism institutions will warrant the same level of deference from courts as other federal agencies, both because of separation of powers

232. *See, e.g.*, Ronald A. Kaiser & Shane Binion, *Untying the Gordian Knot: Negotiated Strategies for Protecting Instream Flows in Texas*, 38 NAT. RESOURCES J. 157, 179 (1998); *see also* Raymond Dake, *The Great Compromise: Overcoming Impasse in Interstate Water Compacts Through Alternative Dispute Resolution*, 77 UMKC L. REV. 789, 807 n.153 (2009).

233. *See* Dellapenna, *supra* note 35.

234. 42 U.S.C. § 4332 (2012).

235. 16 U.S.C. § 1536 (2012).

236. *See* Dellapenna, *supra* note 35, at 833 ("Apart from requiring congressional consent, the Constitution places no limit on what might be done through an interstate compact. . . . [T]he status of the compact as a federal statute severely limits the powers of even federal courts to reform the compact."); *see also* Nat'l Ass'n of Homebuilders v. Defenders of Wildlife, 551 U.S. 644, 649 (2007) (stating that the Endangered Species Act Section 7 Consultation requirements did not apply to a federal statute that required granting primacy over Clean Water Act provisions to a state meeting certain requirements, none of which included Section 7 Consultation, and that a compact could similarly avoid federal environmental review requirements when appropriate).

arguments, and also because of a comparative institutional competency.[237] When the interstitial federalism institution is composed solely of political appointees or elected representatives, it does not warrant judicial deference. But when the institution employs resource experts with a comparative advantage in managing and monitoring, courts should defer to determinations made by interstitial federalism institutions.

Strong interstitial federalism institutions will also provide a forum for dispute resolution.[238] As the Supreme Court has become increasingly unmoored from state law in its equitable apportionment jurisprudence, litigation over interstate water apportionment has become increasingly unpredictable.[239] If courts continue to be largely deferential to management decisions made by the commission, then perhaps these commissions should also be the primary body for dispute resolution.

For example, the Great Lakes-St. Lawrence River Basin Water Resources Compact (the GLSL Compact) contains specific provisions on dispute resolution methods for the basin's commission.[240] The Great Lakes and St. Lawrence basins have been some of the most controversial interstate basins in recent years, in part because of increasing calls for water exports from the basins.[241] What was once considered a massive and inexhaustible source of freshwater has increasingly been viewed as effectively nonrenewable.[242] In response to the concern about the impact of water exports on a nonrenewable water supply, the GLSL Compact created the Great Lakes Commission, authorizing the commission to allocate costs "equitably" among signatory states according to their respective interests.[243] The Commission also has the authority to select dispute resolution methods and

237. Louis J. Virelli III, *Deconstructing Arbitrary and Capricious Review*, 92 N.C. L. REV. 721, 726 (2014); *see also* Mark D. Rosen, *The Structural Constitutional Principle of Republican Legitimacy*, 54 WM. & MARY L. REV. 371, 420–21 (2012).

238. *See* Dake, *supra* note 232.

239. Hall & Cavataro, *supra* note 106, at 1606; *see also* Douglas L. Grant, *Collaborative Solutions to Colorado River Water Shortages: The Basin States' Proposal and Beyond*, 8 NEV. L.J. 964, 991 (2008).

240. COUNCIL OF GREAT LAKES GOVERNORS, GREAT LAKES-ST. LAWRENCE RIVER BASIN WATER RESOURCES COMPACT (Dec. 13, 2005), http://www.cglg.org/projects/water/docs/12-13-05/Great_Lakes-St_Lawrence_River_Basin_Water_Resources_Compact.pdf [hereinafter GLSL COMPACT].

241. *See, e.g.*, Christine A. Klein, *The Dormant Commerce Clause and Water Export: Toward a New Analytical Paradigm*, 35 HARV. ENVTL. L. REV. 131, 132 (2011); *see also* Robert W. Adler, *Climate Change and the Hegemony of State Water Law*, 29 STAN. ENVTL. L.J. 1, 47 (2010).

242. *See generally* Stanley A. Changnon, *Understanding the Physical Setting: The Great Lakes Climate and Lake Level Fluctuations*, *in* THE LAKE MICHIGAN DIVERSION AT CHICAGO AND URBAN DROUGHT 39 (Stanley A. Changnon ed., 1994) (discussing effects on the Great Lakes from temporal changes in heavy rains and backflows). *See also* A. Dan Tarlock, *Reconnecting Property Rights to Watersheds*, 25 WM. & MARY ENVTL. L. & POL'Y REV. 69, 93–95 (2000).

243. GLSL COMPACT, *supra* note 240, § 2.4.

procedures for any disputes arising from water allocations between signatory states.[244] The GLSL Compact could go further, however, by establishing a permanent dispute resolution forum and procedures with stronger enforcement mechanisms.[245]

Strong interstitial federalism institutions with dispute resolution, enforcement, regulatory, permitting, monitoring, and apportionment authority will serve to internalize water management costs to a single jurisdiction whose boundaries are consistent with the watershed itself. This approach could improve water management in some of the most critical and hotly contested interstate basins governed by relatively weak commissions, like the Colorado, Red River, and Great Lakes commissions.[246] Furthermore, it could prove to be the model going forward for equally critical and hotly contested basins not currently governed by any form of interstitial federalism—for example, the Midwest's Ogallala Aquifer.[247]

The Delaware River Basin Commission (DRBC) and the Susquehanna Basin Commission are examples of interstitial federalism institutions that have successfully achieved a measure of power and autonomy sufficient to meet the internalization prescription for government jurisdiction.[248] Strong interstitial federalism institutions like these do not necessarily grow out of top-down imposition of regional requirements. Indeed, the unpredictability of federal equitable apportionment of interstate waters, or the fear of the kind of broad administrative apportionment authority granted to the Secretary of the Interior—in the Colorado River Basin, for example—can be spurs for grassroots development of interstitial federalism.[249] As such, states may pursue interstitial federalism as a means of avoiding federal intervention in the river basin.

Additionally, strong interstitial federalism institutions are not necessarily a threat to state sovereignty. Federalism is an integral aspect of the Constitution's design, partially to promote interjurisdictional competition that achieves a "race

244. *Id.* § 7.3; *see also* Dake, *supra* note 232, at 801.

245. *See* Dellapenna, *supra* note 35, at 852–53 (noting that "the Commission is strictly limited to making recommendations"); *see also* Dake, *supra* note 232, at 802.

246. Dellapenna, *supra* note 35, at 853; *see also* C. Hansell Watt, IV, *Who Gets the Hooch? Georgia, Florida, and Alabama Battle for Water From the Apalachicola-Chattahoochee-Flint River Basin*, 55 MERCER L. REV. 1453 (2004).

247. *See* Robert R.M. Verchick, *Dust Bowl Blues: Saving and Sharing the Ogallala Aquifer*, 14 J. ENVTL. L. & LITIG. 13, 21 (1999) (noting the failure to establish interstate cooperation over the management of the transboundary Ogallala Aquifer).

248. *See* Joseph W. Dellapenna, *Developing a Suitable Water Allocation Law for Pennsylvania*, 17 VILL. ENVTL. L.J. 1, 70–71 (2006); *see also* Susquehanna River Basin Compact, Pub. L. No. 91-575, 84 Stat. 1509 (1970).

249. Dellapenna, *supra* note 35, at 894–95; *see also* Hall & Cavataro, *supra* note 106, at 1600.

to the top."[250] Interjurisdictional competition makes sense from a policy perspective, because competition can encourage innovation. The desire for such competition could support a presumption that, where powers are left unenumerated, those powers are left to the state to encourage competition.[251] But this kind of interjurisdictional competition faces many of the same obstacles to efficient outcomes as any market.[252] Cost externalization is one such example, and it is resolved (or at least mitigated) by strong interstitial federalism.[253] Cartels, or associations of competitors within an industry cooperating to control prices, are another obstacle to achieving market efficiency that result from intra-industrial and interjurisdictional competition. Business competitors may conspire to cartelize industries to divide markets, suppress competition, and raise prices.[254] Similarly, states may seek federal intervention as a means of suppressing interjurisdictional competition or to subsidize or otherwise avoid the consequences of policy choices.[255] Interstitial federalism facilitates cost internalization to the appropriate jurisdiction, but avoids overcartelization by maintaining interjurisdictional competition as a central virtue of federalism.

If states view strong interstitial federalism as a means of avoiding top-down federal intervention in the basin, while still preserving the virtues of interjurisdictional competition, they may be willing to meaningfully empower interstitial federalism institutions, so long as state sovereignty can be sufficiently preserved. Such empowerment in the field of interstate water resources includes regulatory and permitting authority comparable to the DRBC, including requirements for instream flow maintenance, minimum water efficiency requirements for irrigation, and energy exploration and production within the basin.[256]

Interstitial federalism institutions must be funded by member states to a degree that the institutions can be the clearinghouse for all relevant data on the basin, employ technical experts, and warrant judicial deference on the grounds of

250. *See* Jonathan H. Adler, *Interstate Competition and the Race to the Top*, 35 HARV. J.L. & PUB. POL'Y 89, 89 (2012).
251. *Id.* at 91.
252. *See* Saxer, *supra* note 2, at 659–61.
253. *Id.* at 674–75.
254. Adler, *supra* note 250, at 98; *see also* ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS 129 (Kathryn Sutherland ed., Oxford Univ. Press 1993) (1776) ("People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the publick [sic], or in some contrivance to raise prices.").
255. Adler, *supra* note 250, at 98; *see generally* Greve, *supra* note 118.
256. *See, e.g.*, Karrigan S. Börk et al., *The Rebirth of California Fish & Game Code Section 5937: Water for Fish*, 45 U.C. DAVIS L. REV. 809, 832–33 (2012); Stephen E. White & David E. Kromm, *Local Groundwater Management Effectivneess in the Colorado and Kansas Ogallala Region*, 35 NAT. RESOURCES J. 275, 287 (1995).

institutional competency. Such expertise should be available to facilitate cost-effective dispute resolution.[257] Planning of new federal projects within the basin should be subordinate to interstate commission management and should be done in consultation with commission authorities.[258] For true interstitial federalism, interstate river basin commissions must move beyond the limited functions of pure gross allocation or pure information sharing and assume the primary jurisdictional role over interstate waters.

Importantly, interstate water is only one type of spillover commons that benefits from strong interstitial federalism. For example, the success of the City of Portland, Oregon in managing urban growth and transportation has been ascribed to interjurisdictional cooperatives between Portland and neighboring Vancouver, Washington.[259] Similarly, the Metropolitan Washington Airports Authority has been described as a successful model for collaborative, interjurisdictional governance of interstate transportation.[260] Additionally, arguments similar to the interstitial federalism concept have been promoted and even successfully implemented by interstate compacts in the field of transboundary energy development and transmission.[261]

B. Integrated Management and Interstitial Federalism

Despite the advantages of strong interstitial federalism, such strength often comes at a price. Just because the interstitial federalism institution is strong and has the necessary expertise, authority, and funding to avoid externalities, resolve legal uncertainty, and warrant judicial deference, the institution will not necessarily manage spillover commons effectively. Indeed, the DRBC is perhaps the most powerful interstate commission in the United States, and yet the fracking controversy within the Delaware Basin illustrates the challenges faced even by

257. *See* Zachary L. McCormick, *Interstate Water Allocation Compacts in the Western United States—Some Suggestions*, 30 WATER RESOURCES BULL. 385, 389–90 (1994).

258. Dellapenna, *supra* note 35, at 844 (noting that Congress consented "to the subordination of all new federal projects in the Delaware basin to the planning authority of the Delaware River Basin Commission").

259. Spencer B. Beebe, *Integrative Solutions: Current Success and Future Trends*, 27 ECOLOGY L.Q. 1239, 1249 (2001); *see also* Katharine J. Jackson, *The Need for Regional Management of Growth: Boulder, Colorado as a Case Study*, 37 URB. LAW 299 (2005).

260. *See* James W. Moeller, *Legal Issues Associated with Safe Drinking Water in Washington, D.C.*, 31 WM. & MARY ENVTL. L. & POL'Y REV. 661, 670 (2007).

261. *See generally* Craig, *supra* note 109, at 772 (arguing that "most multistate renewable energy programs and projects will require an interstate compact"); Hari M. Osofsky & Hannah J. Wiseman, *Hybrid Energy Governance*, 2014 U. ILL. L. REV. 1, 2 (2014) (arguing in favor of "hybrid institutions with substantial regional components" to address energy challenges).

strong interstitial federalism institutions.[262] As discussed above, interstitial federalism institutions often fail to adequately integrate economic, ecologic, and sociocultural considerations into spillover commons management decisions. Thus, effective interstitial federalism must comply with both the internalization prescription (appropriate empowerment and scaling of jurisdiction) and the integration prescription (appropriate integration of management considerations in decision making).

To more fully integrate sociocultural considerations, interstitial federalism institutions must develop a more inclusive and collaborative framework.[263] Stakeholders—particularly member states and tribes sharing transboundary rivers—will not invest in a collaborative manner in an institution they view as either indifferent or hostile to their own interests.[264] Tribes should be part of a commission that facilitates stakeholder participation through an inclusive and transparent process.[265] The aim of this process should be to integrate tribal interests into management decisions, as well as to facilitate both the quantification of tribal rights and the settlement of state general stream adjudications. Tribes should have appointed representatives to interstitial federalism institutions, should be signatories to Congressionally approved compacts dealing with spillover commons on tribal lands, and should be full participants in adjudicating and having their rights adjudicated by interstitial federalism dispute resolution forums. Tribes, however, represent only one group that has often been excluded or marginalized in interstitial federalism. Others include nonstate actors, such as nongovernmental organizations dedicated to environmental protection and sustainability, natural resource development companies, and public utilities.

Legitimacy allows interstitial river basin commissions to secure sufficient funds and maintain sufficient oversight and enforcement power to effectively manage spillover commons. The basin-level governance institution must be perceived by all riparian states, and by the stakeholders in water management in the basin, as legitimate. Legitimacy depends upon full participation and transparency

262. Dellapenna, *supra* note 35, at 831; *see also* SAX ET AL., *supra* note 161, at 854.

263. Rachel A. Kitze, *Moving Past Preemption: Enhancing the Power of Local Governments Over Hydraulic Fracturing*, 98 MINN. L. REV. 385, 413 (2013) (noting that one of the main weaknesses of even strong interstitial federalism institutions is "the lack of formal and meaningful involvement of local government representatives in these commissions").

264. Erin Ryan, *Negotiating Federalism*, 52 B.C. L. REV. 1, 130–31 (2011); *see also* Matthew J. Parlow, *Civic Republicanism, Public Choice Theory, and Neighborhood Councils: A New Model for Civic Engagement*, 79 U. COLO. L. REV. 137, 184 (2008).

265. Jeffrey T. Matson, *Interstate Water Compact Version 3.0: Missouri River Basin Compact Drafters Should Consider an Inter-Sovereign Approach to Accommodate Federal and Tribal Interests in Water Resources*, 88 N.D. L. REV. 97, 137–38 (2012).

between collaborating riparians and their respective nonstate stakeholders.[266] One problem, however, is that too much participation from nonstate stakeholders can unnecessarily increase transaction costs, and too much influence from nonstate stakeholders can threaten the perceived legitimacy of the interstitial federalism institution.[267]

The values and concerns of nonstate stakeholders can be effectively integrated into interstitial management decisions without unduly increasing transaction costs or threatening the legitimacy of the institution. This is achieved through a new governance model. This model involves a decentralized and diverse group of stakeholders encouraged to engage in self-regulation. The new governance model relies on that diverse group of stakeholders to enhance regulatory expertise and facilitate adaptive management.[268] In a new governance model, interstitial federalism institutions orchestrate regulatory standard setting—the collaborative promulgation by nonstate actors of nonbinding, voluntary standards of conduct.[269] Where nonstate actors collaborate to voluntarily assume minimum efficiency requirements in resource management or minimum quality standards in resource quality, interstitial federalism institutions provide expedited permitting processes or decreased penalties for violations disclosed through voluntary audit and disclosure standards. This collaborative new governance integrates the expertise and unique sociocultural considerations of nonstate actors into management decisions through incentives for voluntary standard setting. Inclusive interstitial federalism institutions ensure that any unique sociocultural values placed upon spillover commons by jurisdictions are appropriately accounted for in management decisions.

Integration of economic considerations into interstitial federalism can be facilitated by encouraging economically efficient water uses. To achieve this, interstitial federalism institutions should not aim for equitable apportionment of raw water, but rather should strive to achieve shared benefits of water development. The 1961 Columbia River Treaty effectively illustrates the concept of shared

266. *See, e.g.*, Weber, *supra* note 204, at 844; Melvin Woodhouse, *Is Public Participation a Rule of the Law of International Watercourses?*, 43 NAT. RESOURCES J. 137, 139 (2003).

267. *See generally* Michael J. Gilligan, *The Transaction Costs Approach to International Institutions*, *in* POWER, INTERDEPENDENCE AND NON-STATE ACTORS IN WORLD POLITICS 50 (Helen V. Milner & Andrew Moravcsik eds., 2009). For an example of how inclusion of non-state actors in natural resource management decisions can threaten the legitimacy of institutions, see Nat'l Park & Conservation Ass'n v. Stanton, 54 F. Supp. 2d 7 (D.D.C. 1999).

268. Kenneth W. Abbott & Duncan Snidal, *Strengthening International Regulation Through Transnational New Governance: Overcoming the Orchestration Deficit*, 42 VAND. J. TRANSNAT'L L. 501, 508–10 (2009).

269. *Id.* at 506–07; *see also* Robert H. Abrams, *Transboundary Water Allocation Risks of Compacts: Who Wins When Legal Rules Face Adaptive Challenges*, 60 ROCKY MT. MIN. L. INST. 9-1 (2014).

benefits.[270] The concept of shared benefits is derived from welfare economics, noting that water is a valuable, scarce commodity with multiple possible alternative uses, and the most effective use is often dictated by geography.[271] The Columbia River Treaty requires upstream and downstream users to make geographically suitable and economically efficient use of their respective allocations, and then share the benefits of that water development with coriparian jurisdictions.[272] In this treaty, Canada agreed to forego certain water development projects within the basin and offered flood control measures to the United States in exchange for U.S. revenues generated from electricity sales and water storage for Canadian users.[273]

To further illustrate shared benefits, imagine a transboundary river with an upstream jurisdiction and a downstream jurisdiction. The upstream jurisdiction is a rocky, mountainous region. The rocky soil is not suitable for large-scale, irrigation-fed agriculture, but the mountains and valleys provide significant hydroelectric and water storage potential. Snowpack and great rainfall make for more reliable stream flows. The downstream riparian is a lowland area with slow-moving streams and fertile soil. Less snowpack and precipitation make for more variable stream flows, with a more challenging drought and flood cycle. The upstream jurisdiction is well-suited for hydroelectric energy production and water storage, but not well-suited for agriculture. Because of more reliable stream flows, the upstream jurisdiction is in less need of water storage. The downstream jurisdiction is well suited for large-scale, irrigation-based agriculture, but is in more need of water storage to manage stream flows and generate electricity. Each jurisdiction could attempt to capture the full panoply of water uses, but that would mean inefficient attempts to implement uses that may be a poor geographic or economic fit.[274]

Instead, the jurisdictions should engage in benefit sharing. The upstream jurisdiction should trade storage, stream flow management, and energy generation

270. Treaty Between Canada and the United States of America Relating to Cooperative Development of the Water Resources of the Columbia River Basin, art. VIII, Jan. 17, 1961, 15.2 U.S.T. 1555 [hereinafter Columbia River Treaty]; *see also* Patricia K. Wouters, *Allocation of the Non-Navigational Uses of International Watercourses: Efforts at Codification and the Experience of Canada and the United States*, 30 CAN. Y.B. INT'L L. 43 (1992).

271. *See* Tarlock & Wouters, *supra* note 24, at 533 (citing Claudia W. Sadoff & David Grey, *Beyond the River: The Benefits of Cooperation on International Rivers*, 4 WATER POL'Y 389 (2002)).

272. *Id.* at 533–34; *see also* Larson, *supra* note 18.

273. Larson, *supra* note 18, at 803.

274. *See generally* Rachael Paschal Osborn, *Climate Change and the Columbia River Treaty*, 2 WASH. J. ENVTL. L. & POL'Y 75 (2012) (arguing that the United States and Canada should renegotiate the Columbia River Treaty to account for changing geographic and economic conditions attributable to climate change).

for food. In this way, each jurisdiction engages in the most efficient and appropriate use of water under its geographic constraints, but shares equally in the benefits derived from all of the water development in the basin.[275] The shared benefits approach ensures that uses occur in the most appropriate hydrogeological and economic setting, regardless of jurisdiction, and then distributes benefits equitably across the entire basin.[276] Benefit sharing is not only more efficient and geographically tailored than the simple allocation of raw water, it also increases the legitimacy of the interstitial federalism institution, as member jurisdictions assume the benefits of their comparative advantages in water development without sacrificing food, energy, or water security.[277]

Another example of shared benefits is the creation of the Arizona Water Banking Authority (AWBA) in the Colorado River basin.[278] Arizona created the AWBA in 1996 as a means of storing Arizona's unused allocation of Colorado River water.[279] Arizona's geology allows it to artificially recharge depleted aquifers with water from the Colorado River, effectively storing Colorado River wawater for future use as groundwater.[280] Arizona has expanded the AWBA from simply storing Arizona's allocation of Colorado River water to contracting with California and Nevada to store allocations on their behalf.[281] In this way, a state takes economic advantage of its geologic conditions that make storage possible and effectively monetizes its own water efficiency by storing and selling unused allocations. As such, a jurisdiction with geological storage capacity through artificial recharge should share the benefits of that storage while accepting other benefits in exchange, including infrastructure financing, energy sales, and food. This type of shared benefits could apply equally to states and Native American tribes with the appropriate geological conditions and could serve an important role in facilitating settlement of tribal water rights claims.[282]

Benefit sharing need not be limited solely to water quantity. For example, a state that remediates water contamination to increase the stream's assimilative capacity should be compensated by coriparian states for that increased assimilative

275. *See, e.g.*, Scott McKenzie, *A River Runs Through It: The Future of the Columbia River Treaty, Water Rights, Development, and Climate Change*, 29 GA. ST. U. L. REV. 921 (2013) (arguing that the Columbia River Treaty's basin-level approach to shared benefits and its adaptive capacity make it a model for international transboundary water management).
276. *See* Tarlock & Wouters, *supra* note 24, at 526–27.
277. Larson, *supra* note 166.
278. *See* Dean Waters Price, *The Legal and Historical Barriers to Out-of-District Transfers From Mainstream Colorado River Irrigation Districts in Arizona*, 15 U. DENV. WATER L. REV. 5 (2011).
279. Kyl & Smith, *supra* note 43, at 213.
280. *Id.* at 212.
281. *Id.* at 214.
282. *Id.* at 215.

capacity. Water quality credits could be awarded to the remediating state and purchased by permitted dischargers to the water body as a means of maintaining water quality while encouraging remediation.[283]

New governance and shared benefits reforms will facilitate integration of economic and sociocultural considerations in interstitial federalism. Three additional reforms would facilitate the integration of ecological considerations into interstitial federalism. First, in striving to achieve shared benefits, outcomes should be evaluated not solely on allocations of raw water amounts or percentages, but upon equitable and efficient distributions of virtual water.[284] Sustainability should be measured not solely by raw water uses or raw water savings, but by water footprints based on the concept of virtual water.[285] In this way, water embedded in energy is accounted for, and thus integrates energy efficiency and associated carbon emissions. Because water is embedded in agricultural products, policies focused on water integrate food security and irrigation efficiency into a single policy paradigm along with energy security and ecological concerns. Furthermore, water footprints can incorporate the loss of water through decreased assimilative capacity attributable to contamination.[286] Water footprints thus are the most fully integrated and relevant sustainability measurement for interstate river basin commissions. Measuring water efficiency, use, and sustainability through water footprints will also facilitate shared benefits, because water sharing will not be seen through the narrow lens of raw water apportionment, but through the more integrated lens of virtual water.

Second, authority under traditional, collaborative governance statutes regulating water and aquatic ecosystems—like the Safe Drinking Water Act,[287] the Clean Water Act,[288] and the Endangered Species Act[289]—should involve delegating administrative authority from the federal government to the interstitial governance institution, with limited federal oversight. Additionally, states should delegate traditional state environmental regulatory authority—for example, groundwater quality regulation—to the interstitial federalism institution. This arrangement would avoid the redundant regulation often inherent in the binary state-federal paradigm (as was seen in the Underground Injection Control Permit and Discharge Permit required for fracking operations in New Mexico). It would also appropriately integrate surface water and groundwater quality, as well

283. Larson, *supra* note 214, at 1014–15.
284. Larson, *supra* note 166, at 932–36.
285. *Id.* at 955.
286. Larson, *supra* note 214, at 1004–06.
287. 42 U.S.C. § 300f (2012).
288. 33 U.S.C. § 1251 (2012).
289. 16 U.S.C. § 1531(c) (2014).

as water quality with water quantity, thus allowing considerations of assimilative capacity associated with stream flow to be integrated with water quality regulation.

The third way in which interstitial federalism institutions can fully integrate ecological considerations into management decisions is by engaging in adaptive management. As noted above, adaptive management is a hallmark of new governance.[290] Adaptive management is "a structured decisionmaking method, the core of which is a multistep, iterative process for adjusting management measures to changing circumstances or new information about the effectiveness of prior measures or the system being managed."[291] As interstitial federalism institutions implement adaptive management, these institutions will integrate ecological considerations more effectively, particularly as climate change impacts the already dynamic hydrologic conditions of individual basins and sub-basins.[292] These reforms will allow interstitial federalism institutions to effectively integrate the varied (and variable) conditions and considerations inherently involved in interjurisdictional management of spillover commons.[293]

C. Fiduciary Governance and Interstitial Federalism

Appropriately empowered interstitial federalism institutions that adopt integrated management measures will succeed only as far as they are legally and politically viable. The Constitution contemplates a role for interstitial federalism in the Compact Clause of Article I.[294] However, effectively empowered interstitial federalism institutions could engage in both rulemaking and adjudication. The question would remain whether such legislative or adjudicatory power could legally be delegated to these institutions. As for delegations of rulemaking authority, the limits on Congress's ability to make such delegations are virtually nonexistent, and such delegations are upheld so long as they contain an "intelligible principle" to guide the implementing agency.[295] As such, compacts establishing interstitial federalism institutions need only contain a very vague intelligible

290. Larson, *supra* note 18, at 804–05.
291. Robin Kundis Craig & J.B. Ruhl, *Designing Administrative Law for Adaptive Management*, 67 VAND. L. REV. 1, 1 (2014).
292. *Id.* at 19–20; *see also* Larson, *supra* note 18, at 803.
293. For a discussion of the information costs and information asymmetry challenges facing implementation of adaptive management, see Holly Doremus, *Adaptive Management as an Information Problem*, 89 N.C. L. REV. 1455 (2011).
294. U.S. CONST. art. I, § 10, cl. 3; *see also* Green v. Biddle, 21 U.S. 1 (1823) (upholding the role of interstate compacts in imposing enforceable requirements on states).
295. *See* Whitman v. Am. Trucking Ass'ns, 531 U.S. 457, 472 (2001); *see also* Daniel A. Farber & Anne Joseph O'Connell, *The Lost World of Administrative Law*, 92 TEX. L. REV. 1137 (2014).

principle to avoid any question of an impermissible delegation of legislative authority.[296]

As for any delegated adjudicative function, which would relate to the interstitial federalism institution's role in dispute resolution, a delegation is similarly likely to be upheld. In determining the legality of delegated adjudicative authority, courts look at two broad considerations—structure and individual.[297] For the individual consideration, courts typically place significance on whether the parties to any dispute have consented to the jurisdiction of the adjudicative body.[298] In the case of interstitial federalism, courts are unlikely to find an individual consideration sufficient to strike down the delegation, as states would have consented to the authority of the interstitial federalism institution by compact.

As for the structure concern, courts consider the extent to which the delegated authority is typically reserved to Article III courts;[299] the extent to which the body holding delegated power exercises powers normally vested in Article III courts; the origins and importance of the rights involved in the adjudication; and the concerns that might have driven Congress to depart from Article III jurisdiction.[300] In the case of interstate water rights adjudications: such powers are typically vested in Article III courts; the interstitial federalism institution would be exercising those powers; the rights involved would be important; and their origins lie within the original jurisdiction of the Supreme Court to hear interstate disputes.[301] However, Congress's reasons for departing from primary Article III court jurisdiction would be driven by the comparative institutional competency of an appropriately empowered interstitial federalism institution, combined with continued Article III oversight. Such considerations have been sufficient to uphold broad reliance on, and broad deference to, special masters in Supreme Court

296. Nicholas Bagley, *The Puzzling Presumption of Reviewability*, 127 HARV. L. REV. 1285, 1310 (2014).

297. Commodity Futures Trading Comm'n v. Schor, 478 U.S. 833 (1986) (holding that delegations of judicial authority to executive agencies must comply with both structural concerns of separation of powers and individual concerns of fairness); *see also* Ronald J. Krotoszynski, Jr., *Cooperative Federalism, The New Formalism, and the Separation of Powers Revisited: Free Enterprise Fund and the Problem of Presidential Oversight of State-Government Officers Enforcing Federal Law*, 61 DUKE L.J. 1599 (2012).

298. N. Pipeline Constr. Co. v. Marathon Pipe Line Co., 458 U.S. 50, 67 (1982); *see also* Erwin Chemerinsky, *Ending the Marathon: It Is Time to Overrule* Northern Pipeline, 65 AM. BANKR. L.J. 311 (1991).

299. Article III courts are those courts established and empowered pursuant to Article III of the U.S. Constitution.

300. *Schor*, 478 U.S. at 867.

301. *See* Ann-Marie C. Carstens, *Lurking in the Shadows of Judicial Process: Special Masters in the Supreme Court's Original Jurisdiction Cases*, 86 MINN. L. REV. 625, 627–30 (2002).

original jurisdiction over interstate water disputes, and thus are likely to also support delegation to interstate river basin commissions.[302]

The greatest obstacle to effective interstitial federalism is not legal, but political. States may oppose any sacrifice of sovereignty to a regional institution, particularly when there is a history of power asymmetries in interstate conflict over shared resources. As has been discussed above, this is a common theme in transboundary water disputes, and thus would be the most significant threat to effective management of spillover commons through interstitial federalism. In the Delaware River basin, some member states agreed with the moratorium on fracking, while others disagreed. What means exist for a state to ensure it is not marginalized within the interstitial federalism institution? What assurances or inducements can be given to states to engage in interstitial federalism without a fear of sacrificing autonomy or sovereignty?

Interstitial federalism institutions should engage in fiduciary governance to avoid marginalization of member jurisdictions, to provide a remedy when the institution fails to reasonably manage spillover commons for the benefit of all members, and to induce states to engage in interstitial federalism by providing a backstop against the loss of sovereignty.[303] Water at the state law level is typically held in trust by the state, to be managed for the benefit of all citizens, with individuals holding only a usufructory right to the water.[304] This same basic conception of the public trust doctrine can be scaled up to the interstitial federalism level, whereby commissions hold interstate water resources in trust for member states.[305] Implicit within this trust relationship is a corresponding fiduciary obligation to manage these resources reasonably and with a good faith effort to distribute benefits equitably among member jurisdictions. Where the interstitial federalism institution fails to adequately integrate the participation and views of member states, where it fails to reasonably and equitably manage shared resources, or where management decisions are shown to be arbitrary, capricious, or

302. *Id.* at 629.

303. *See generally* Ethan J. Leib et al., *A Fiduciary Theory of Judging*, 101 CAL. L. REV. 699 (2013) (discussing the role of judges as fiduciaries). *See also* Ethan J. Leib et al., *Translating Fiduciary Principles Into Public Law*, 126 HARV. L. REV. F. 91 (2013) (addressing the role of fiduciary governance in guiding the substance of judicial remedies). *But see* Seth Davis, *The False Promise of Fiduciary Government*, 89 NOTRE DAME L. REV. 1145 (2014) (arguing that fiduciary governance fails because government officials are too dissimilar from traditional fiduciaries in terms of scope of diversity of interests represented and served).

304. *See, e.g.*, Robin Kundis Craig, *A Comparative Guide to the Western States' Public Trust Doctrines: Public Values, Private Rights, and the Evolution Toward an Ecological Public Trust*, 37 ECOLOGY L.Q. 53 (2010); Michael D. Morrison & M. Keith Dollahite, *The Public Trust Doctrine: Insuring the Needs of Texas Bays and Estuaries*, 37 BAYLOR L. REV. 365 (1985).

305. Sax, *supra* note 226, at 475–77.

not in accordance with the governing compact, member states have a cause of action against the interstitial federalism institution. Such a cause of action, based on a breach of fiduciary duty, is common in countries that recognize the public trust doctrine and is consistent with the underlying rationale of a writ of mandamus.[306]

This approach allows member states some level of oversight and a cause of action in those cases where the commission itself acts against the interests of member states in managing water resources. Furthermore, this approach would ideally settle the ambiguity inherent with interstitial federalism in a way consistent with the Court's decision to protect state sovereignty in *Tarrant Regional Water District v. Herrmann*,[307] while at the same time avoiding the potential marginalization or lack of a cause of action seen in the fracking controversy in the Delaware River Basin. The states remain the trustees of the public trust over rivers located within their own borders, and have not ceded sovereignty to the commission, but instead hold the commission accountable as their fiduciary in the management of issues relating to transboundary water resource management.

Of course, the challenge of implementing such a fiduciary relationship is the risk that it will aggravate conflict rather than facilitate collaboration. Breach of duty claims within the interstitial federalism institution could replace protracted general stream adjudications or equitable apportionment adjudications as simply another costly form of interstate water conflict.[308] However, the inability of a fiduciary to keep all of the beneficiaries of the trust happy is not a reason to eliminate the fiduciary obligation entirely. States may use this cause of action to stall or manipulate otherwise effective water management decisions, but the value of this cause of action as a method to induce cooperation would ideally outweigh that potential cost.

This risk of protracted disputes over the fiduciary obligations of the commission is only one potential objection to a trust relationship between states and river basin commissions. Commissions established by interstate compact are too often held together only as long as political convenience allows. For example, the Supreme Court held that North Carolina was not liable for breaches of an interstate compact regulating disposal of radioactive waste, because the compact did not authorize any monetary sanctions for withdrawal, nor did courts owe any

306. Michael C. Blumm & Rachel D. Guthrie, *Internationalizing the Public Trust Doctrine: Natural Law and Constitutional and Statutory Approaches to Fulfilling the Saxion Vision*, 45 U.C. DAVIS. L. REV. 741 (2012); *see also* Larson, *supra* note 18, at 769 n.53.

307. 133 S. Ct. 2120 (2013).

308. Joseph W. Girardot, *Toward a Rational Scheme of Interstate Water Compact Adjudication*, 23 U. MICH. J.L. REFORM 151, 152 (1989); Ryan Rowberry, *Drinking From the Same Cup: Federal Reserved Water Rights and National Parks in the Eastern United States*, 29 GA. ST. U. L. REV. 987, 1020 (2013).

deference to the interstate commission's determination.[309] The Court's decision reinforces the argument that commissions should be constituted with sufficient expertise to warrant judicial deference and should be empowered to impose monetary sanctions should a state withdraw from the compact or materially breach compact provisions. Otherwise, member states could not count on coriparian jurisdictions to honor compact commitments beyond the point of their own jurisdictional self-interest.

But solving the problem of deference and enforcement could only frustrate efforts at interstitial federalism by encouraging ex ante holdouts to joining compacts because of mutual mistrust. Mistrust of coriparian states, particularly their ability to capture interstitial federalism institutions, could result in holdouts in the compact negotiation process, unnecessarily increasing transaction costs and thwarting many of the benefits of interstitial federalism.[310] Yet states have options that can be included within the compact to counter the problem of holdouts and avoid protracted litigation over the fiduciary duties of interstitial federalism institutions.

Interstate politics could rob interstitial federalism of its potential to facilitate collaborative governance in other ways. Many parts of member states would lie outside of the river basin, and yet would have some representation on a river basin commission. This would present problems of high transaction costs and remote, disengaged stakeholders comparable to the federal-centric approach to spillover commons governance. One potential solution to this problem is to treat the trust relationship as one between the river basin commission and the people of the basin itself. Commission membership could be limited to government officials representing solely interests from within the basin.

Even if a narrower conception of the trust relationship mitigated political obstacles to interstitial federalism, other measures might be necessary to incentivize interstate collaboration. Interstitial federalism institutions could implement a liability rule or compulsory unitization system to compensate member states for impacts approved by the institution in the best interest of all members.[311] In a liability rules system, the river basin commission would approve Pareto-efficient projects (projects that make all stakeholders better off but none worse off) without any problem. But where a project is in the best interest of all members, and one member still bears an inequitable burden associated with the project, other

309. Alabama v. North Carolina, 130 S. Ct. 2295, 2307–08 (2010).

310. Jonathan Baert Wiener, *Global Environmental Regulation: Instrument Choice in Legal Context*, 108 YALE L.J. 677, 741 (1999); *see also* Stephen N. Bretsen & Peter J. Hill, *Water Markets as a Tragedy of the Anticommons*, 33 WM. & MARY ENVTL. L. & POL'Y REV. 723, 744 (2009).

311. Troy A. Rule, *Property Rights and Modern Energy*, 20 GEO. MASON L. REV. 803, 833 (2013).

jurisdictions would compensate that jurisdiction for those costs.[312] Compulsory unitization is used in oil and gas fields to require owners to sell oil and gas interests to facilitate efficient extraction.[313] This type of compensation scheme is similar to the ultimate outcome of *Arizona v. California*[314] and the dispute over the Colorado River.[315] Ultimately, Arizona acquiesced to dam construction and to the Colorado River Compact, but the state was compensated by federal loans to fund the Central Arizona Project, a canal that would bring Colorado River water to the population centers in central Arizona.[316]

This sort of liability rule- and cost-sharing component requires the participation of federal agencies like the Bureau of Reclamation, the U.S. Army Corps of Engineers, or the regional offices of the Environmental Protection Agency as federal agents or representatives on the commission. They would be authorized to negotiate federal funding for such projects. The compulsory unitization approach, comparable to the Central Arizona Project financing, would have to be adapted to transboundary water management, because compulsory unitization in the oil and gas field is an exploitation-development rule, whereas in transboundary water management it would be a conservation-sustainability rule. But a properly adapted cost sharing or liability rule regime would help overcome political obstacles. After all, the political obstacles to the Colorado River Compact seemed insurmountable (particularly when National Guard troops were marching toward Parker Dam), and yet the compact exists today because of a cost-sharing approach to transboundary water management.

Additionally, the public trust approach for interstate river commissions may require adaptation to the unique nature of transboundary governance. Few states internally have seen the public trust doctrine as a reason for overturning agency water management decisions.[317] It is possible that courts would defer to man-

312. *Id.* at 834–35*; see also* Fiske v. Framingham Mfg. Co., 29 Mass. (12 Pick.) 68 (1831). In cases involving dams constructed to operate grist mills, liability rules were often used because the mills were considered indispensable to the surrounding farms that needed to grind wheat into flour. In these cases, the mill operator was allowed to flood upstream neighbors but was required to compensate the upstream property owner for the fair value of the flooded land as a kind of private right of eminent domain. *Fiske*, 29 Mass. (12 Pick.) at 72.

313. Rule, *supra* note 311, at 833–34.

314. 373 U.S. 546 (1963).

315. *Id.*; *see generally* Glennon & Kavkewitz, *supra* note 70 (evaluating the impact of *Arizona v. California*, 373 U.S. 546, on Arizona water law).

316. Robert J. Glennon, *Coattails of the Past: Using and Financing the Central Arizona Project*, 27 ARIZ. ST. L.J. 677 (1995); *see also* Robert A. Pulver, *Liability Rules as a Solution to the Project of Waste in Western Water Law: An Economic Analysis*, 76 CAL. L. REV. 671 (1988).

317. Richard J. Lazarus, *Changing Conceptions of Property and Sovereignty in Natural Resources: Questioning the Public Trust Doctrine*, 71 IOWA L. REV. 631, 674 (1986); *see also* J.B. Ruhl & James Salzman, *Ecosystem Services and the Public Trust Doctrine: Working Change From Within*, 15

agement decisions and adjudications of an interstitial federalism institution to the same degree that states have deferred to water management agencies in the face of public trust doctrine challenges, particularly if interstitial federalism institutions warrant such deference. Such deference would be an effective deterrent to an abuse of this kind of cause of action. But deference alone likely does not account for the general reluctance courts have shown in overturning agency management decisions based on the public trust doctrine.[318] There are more fundamental policy concerns about such a broad interpretation of the public trust doctrine.

Would such an interpretation interfere with private property rights in water, which are arguably essential to avoid the tragedy of the commons?[319] While clearly defined property rights help avoid or mitigate the tragedy of the commons, overassignment of property rights can increase transaction costs, leading to a tragedy of the anticommons.[320] Where goods are inherently public, common-pool, and spillover, a single trustee managing resources for the benefit of all within the pool strikes an appropriate middle ground between the two potential tragic outcomes. Private usufructory rights still ensure excludability, but trustee oversight lowers transaction costs and facilitates sustainable management.[321] Perhaps even more importantly, the public trust doctrine as applied to interstate water management could play a critical role in protecting common property, because such protection encourages collaboration and deeper cultural understanding.[322] This is the ultimate objective of interstitial federalism—a deeper sense of collaborative governance of spillover commons that, by nature, defy strict private property regimes. As interstitial federalism is empowered and encouraged, costs are internalized to the appropriate jurisdictional level, transaction costs are lowered, and interjurisdictional resource conflict becomes interjurisdictional cooperative management.

SOUTHEASTERN ENVTL. L.J. 223, 228 (2006) ("With some notable exceptions, state courts appear to have acted as Lazarus predicted, not as Sax hoped. Few cases have actually forced states to alter their resource management plans." (citation omitted)).

318. Lazarus, *supra* note 317, at 646.

319. *See* Garrett Hardin, *The Tragedy of the Commons*, 162 SCI. 1243 (1968).

320. *See* Michael A. Heller, *The Boundaries of Private Property*, 108 YALE L.J. 1163, 1166–68 (1999).

321. Barton H. Thompson, Jr., *The Public Trust Doctrine: A Conservative Reconstruction & Defense*, 15 SOUTHEASTERN ENVTL. L.J. 47, 62–65 (2006) (arguing that the public trust doctrine is consistent with conservative principles because it lowers transaction costs and facilitates democratic decision making).

322. *Id.* at 63; *see also* Carol Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. CHI. L. REV. 711 (1986) (drawing a connection between "inherently public property"—often including spillover commons—and the role of the public trust doctrine in protecting such property from overexploitation).

CONCLUSION

Spillover commons are inherently problematic because they move between jurisdictions. When these goods are scarce, their management becomes all the more problematic, because jurisdictions become protectionist and even in some cases, belligerent. Interstitial federalism will serve to avoid costs associated with spillover commons management when interstitial federalism institutions effectively implement the internalization and integration prescriptions to the Goldilocks governance challenge. Jurisdiction must not be drawn so narrowly that costs are externalized or so broadly that transaction costs preclude effective integration of local and regional conditions into management decisions. Jurisdiction over spillover commons is just right when jurisdictional boundaries are drawn to match the geographic contours of the goods at issue. Fiduciary governance and shared benefits hopefully will facilitate what is inevitably a fraught political negotiation in establishing an interstate compact and thus an interstitial federalism institution. Interjurisdictional politics—particularly in cases involving a history of contentious interstate sharing of spillover commons—will likely be the greatest obstacle to establishing effective and appropriately empowered interstitial federalism institutions.

More research is needed on how principles of interstitial federalism must be adapted to different types of spillover commons. With water, the geographic contours of the spillover commons are comparatively simple to determine—they are the watershed. However, other spillover commons, like wildlife or infrastructure, lack such an obvious geographic unit.[323] Additionally, more research is needed to determine how principles of interstitial federalism can be adapted to facilitate international transboundary management of spillover commons.[324] Many of the principles will remain the same, but interstate water law has the advantage of avoiding differences in laws and culture that are more prevalent in the international context. Ultimately, however, the prescriptions for effective interstitial federalism—establishing jurisdiction at the appropriate geographic scope to limit externalities and transaction costs, and integrating management through

323. For a broad discussion of the federalism implications of biodiversity protection, see A. Dan Tarlock, *Biodiversity Federalism*, 54 MD. L. REV. 1315 (1995).

324. For a broad discussion of the challenges of transboundary natural resource governance in the international context, see Edith Brown Weiss, *International Environmental Law: Contemporary Issues and the Emergence of a New World Order*, 81 GEO. L.J. 675 (1993). For an overview of transboundary international natural resource disputes, see Cesare P.R. Romano, *International Dispute Settlement*, *in* THE OXFORD HANDBOOK OF INTERNATIONAL ENVIRONMENTAL LAW 1037 (Dan Bodansky, Jutta Brunnée & Ellen Hey eds., 2007).

collaborative, inclusive, and adaptive governance institutions—will serve to more effectively develop and protect spillover commons such as transboundary waters.