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Not in My Watershed! Will Increased Federal Supervision Really Bring Better Coordination Between Land Use and Water Planning?

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Abstract

This article challenges the assertion that increased federal leverage would successfully coalesce land and water planning throughout the country. Federalism will have the opposite effect, exacerbating tensions between competing management authorities and increasing the number of disparate policies to which local governments must adhere, as examples illustrate. Alternatively, we argue for enforcement of existing tools and creation of an institutional framework loosely modeled on federal–state–local partnership in transportation metropolitan planning organizations. While land use and water planning merit closer coordination, a more flexible institutional arrangement is preferable to expanded federal authority under the Clean Water Act.

Keywords

federalism, land use planning, regionalism, water quality, water supply

Introduction

Sustainable management of the nation's water resources—balancing the consumptive supply needs of urban populations and agricultural and industrial uses with the ecological, habitat, or recreational needs of in-stream flows and quality—constitutes one of the greatest challenges facing planning. Nearly all scholars agree that land use decisions and water management should be more fully integrated—both in terms of water quality and water supply availability (Babbitt 2005; Feldman 2007; Lucero 1999; Mandarano, Featherstone, and Paulsen 2008; WWPRAC 1998). While debates about the responsibilities and capacities of each level of government to integrate water and land planning have gone on for at least eighty years (Westcoat 2000), actual practice has evolved into a complex—and cumbersome—web of agencies, interests, goals, regulations, partnerships and funding sources.

Because many view the current system as incoherent and ineffective (Adler 2005; Babbitt 2007), there have been calls to develop a unified federal voice connecting water policy and land use through expansion of the Clean Water Act (CWA) (Babbit 2007). One of the most influential advocates of this view is former Interior Secretary Bruce Babbitt, who recently argued in the *Journal of the American Planning Association* that federal infrastructure funding should be conditioned on a state's preparation of a comprehensive, integrated land and water plan (Babbitt 2007). This approach resurrects a longstanding concern of the environmental community and shares several similarities with the various National Land Use Planning Acts proposed in the early 1970s (Popper 1988; Weir 2000).

Many believe that federal policy is itself inconsistent, with disparate objectives and authority shared across a myriad of administrative agencies (WWPRAC 1998). In fact, the federal government attempted to address the issue with yet another national water policy commission through the Twenty-First Century Water Commission Act of 2009, which died in committee (Neuman 2010). Instead of spending millions of dollars and years of time,

> given a few days and modest rates at the nearest copy shop, we could bind up the reports of previous water study commissions and present those to the president and Congress. . . . The real question that needs further

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> attention is why has so much good work been for naught? (Neuman 2010, 140)[1]

The U.S. Supreme Court in its adjudication and Congress in its legislation have consistently affirmed the primacy of state and local governments in making land use decisions. At the same time, however, increased federal regulations and water policy actions influence and regulate land use indirectly. Thus, any institutional reform would need to address these twin challenges: a complex and incoherent federal policy and the primacy of state and local governments in land use. There is much debate and little consensus on which reforms or alternative institutional designs would better balance local and federal interests, as well as development and conservation needs (Adler 2005; Rosenbaum 2008; Sherk 2005).

Because land use and water are so vitally interdependent, planning and governance of land and water resources need closer coordination and integration. Nearly all agree that fragmentation of planning and governance authorities in the land–water nexus inhibits sustainable management, both scientifically and politically. In this article, however, we argue that an enhanced federal role is not the best mechanism to resolve these competing interests and values extant in water management. Although it is appealing to think that greater federal supervision of local land use planning for water quality protection would provide a more consistent and coherent basis for sustainable water management, we argue that adding additional layers of federal review onto state and local land use planning processes would be cumbersome, unnecessarily complicated, inconsistent, and ineffective. Past history of attempts at federal centralization (such as in the Water Resources Planning Act) suggests the limits of this approach.

To build our argument, we set the stage with an abbreviated examination of land use and water policy's historic coevolution, followed by the case for greater federal supervision in conjoined land-water planning and policy. We then present the case against greater federal centralization and offer our preferred institutional arrangement for balancing the scope of governing arrangements with integrated, multipurpose land and water planning at the watershed level. We argue by analogy that the current federal–state–local partnership in transportation planning, as embodied in the metropolitan planning organization (MPOs) structure, combined with elements of the current Coastal Zone Management Act (CZMA) provides an alternative, adaptive governance regime for regional, watershed-based land and water management.

Abbreviated History of Federal Land Use and Water Policy Relationship

While a complete history of the relationships between water and land use in American history is beyond the scope of this article, this section reviews a few episodes to illustrate the complexities of federal involvement. Water and land management in the early years of American history were predominately governed at the state level, while the federal government was mostly concerned with disposition of public lands and westward settlement. It was widely believed that both land and water were abundant; water quality and land conservation were not primary concerns. To the extent that water supply projects or canals were built, states planned and financed them, even though Treasury Secretary Gallatin had proposed using federal revenues for internal improvements (Fishman 2007).

Federal land sales, railroad grants, and acts such as the 1862 Homestead Act encouraged western settlement and land use change from native landscapes to settled agriculture (Hibbard 1924). Along the eastern seaboard and in the Ohio, Mississippi, and Missouri valleys, water was abundant, and posed no meaningful limits on either agriculture or urban development. Where water was less abundant, the need for irrigation was met with incentives such as the Desert Land Act (1877) and the Carey Act (1894). The combined needs of irrigation and flood control, as well as a nascent conservation movement coalesced in Teddy Roosevelt's administration, who appointed the Inland Waterways Commission that recommended federal multipurpose river-basin planning for forest conservation, flood control, navigation, and irrigation (Fishman 2007; Westcoat 2000).

Offering a counterpoint to a consumptive perspective, John Wesley Powell strongly critiqued western land settlement and irrigation as early as the late nineteenth century. Powell issued prescient warnings about settlement without climatologically sustainable water supply for irrigation and urban development, arguing that land development should be constrained by natural systems and their limits (Powell 1879). The report was largely ignored, and water shortage was considered technologically surmountable through large-scale engineering.

Approved by Roosevelt in 1902, and tasked with "reclaiming" western lands for agriculture and settlement, the Bureau of Reclamation even today exerts a strong role over western water and hence land use. Reclamation projects enabled growth in many arid and otherwise uninhabitable southwestern watersheds. During the New Deal, expanding on the model of the Bureau of Reclamation, flood control and water development projects were funded around the country to facilitate irrigation, electricity, and rural economic development (Fishman 2007).

Ironically, despite its similarity to "national planning" (Fishman 2007; Geisler and Popper 1984), western lands settlement promoted through Bureau of Reclamation projects exemplifies the lack of coordination between land and water planning. Land and water planning were not integrated, except to the extent that both served settlement, development, and agriculture, not conservation or ecological goals (Westcoat 2000; Fishman 2007). The history

of federal involvement shows a strong role for the federal government in financing infrastructure and facilitating development in a manner now considered ecologically harmful. Indeed, a persistent historical theme in the United States is one of federal, state, and local governments vigorously promoting economic development (Wallis 2007), even at the expense of regional environmental quality. There is no reason to believe that merely expanding federal authority under the CWA, in and of itself, would necessarily lead to a unified voice on sustainable land and water management.

An argument for a greater federal role in land and water resources management must reconcile these competing perspectives from the history of federal policy. While the development of federal environmental protection policies in the 1970s (i.e., the Clean Air Act, CWA, CZMA, National Environmental Policy Act, Endangered Species Act, etc.) represented significant new goals for water quality improvement, these policies were grafted onto existing federal, state, and local institutions with their associated histories. Consequently, federal policies and agencies continue at cross purposes.

The CWA in 1972 represented the most significant shift of federal water policy to include regulation of surface water quality and protection of wetlands. In addition to establishing technology-based permitting processes for point-source discharges, the CWA established federal–state partnerships to identify impaired water bodies, designate water quality standards water quality standards, and make plans to achieve those water quality standards. While initial implementation of the CWA focused on mandatory regulatory and permitting processes for point discharges, land use–generated nonpoint-source pollution management has relied on voluntary approaches such as partnerships, grants, and optional programs (EPA 2008). The CWA also omitted a significant element of water management: water quantity, largely because it is within the states' legal purview. Similarly, groundwater is not regulated in the CWA, despite being the sole drinking water source for 15 percent of the American public (EPA 2011). The efficacy of the CWA has suffered from enforcement problems throughout the country, resulting from inadequate budgets and political pressure (Duhigg 2009).

Other federal legislation with more limited linkage between land planning and water include the Endangered Species Act of 1973, and the CZMA of 1972. Enforceable wherever endangered or threatened species are present, the Endangered Species Act established an indirect connection between land planning and water to the extent that water quality and in-stream flow volumes impact critical habitat of threatened or endangered species. The CZMA has a more direct linkage, but it enjoys limited geographic scope (i.e., only in designated coastal zones, defined by those states who elect to participate). Despite its intent "to preserve, protect, develop, and where possible, to restore or enhance the resources of the Nation's coastal zone for this and succeeding generations" (16 U.S.C. §1452(1)), "this policy was not implemented . . . by imposing a federal land and water management scheme on the coastal zone" (Christie and Hildreth 2007, 3). Instead, it uses a combination of funding incentives and flexibility in program structure to entice states to participate.

Unlike the CWA, the CZMA is an entirely voluntary partnership between coastal states and the National Oceanic and Atmospheric Administration to prepare and implement management plans in state-defined coastal areas.[2] One of its programs, the National Coastal Zone Management Program, encourages states to participate through funding incentives for program development and administration (16 U.S.C. §§ 1455, 1456b). Consistency guarantees mean that federal agencies must meet requirements established in state-generated and federally approved coastal management plans (16 U.S.C. 1456). According to Hershman et al. (1999, 115), "the states are the action arm of the coastal management system." Although states distribute regulatory authority in their own coastal management programs, local governments generally retain the ability to regulate land use and permit development.

> Local governments, including cities, counties and substate regional entities, are often primary implementors of state coastal policies and programs. They use traditional land use powers and infrastructure improvements to achieve coastal policy objectives (Hershman et al. 1999, 116).

The flexibility in tailoring coastal programs is extensive; each state can define its own coastal zone, program structure, etc., in order to accommodate local norms, coastal geography, protect coastal resources, and share power between federal, state, and local governments.

Despite these strengths, the CZMA has not been amended since 1996, which creates an extremely pressing problem with projected sea level rise (Pilkey and Young 2009). In addition, the incredible variability in the programs means that it is difficult to assess the effectiveness of the management planning and the ultimate balancing of economic development and environmental protection by participating states (Hershman et al. 1999). Notwithstanding the evaluation challenges caused by complex and disparate structures, several teams of researchers assessed the coastal programs' effectiveness in achieving core objectives over a two-year period in the late 1990s (Hershman et al. 1999). The objectives included protection of estuaries and coastal wetlands, protection of beaches and dunes, provision of public access to the coast, revitalization of waterfronts, and accommodation of seaport development (Hershman et al. 1999). Each of these objectives were "effectively" met, although the coastal managers themselves identified the following failures, among others:

> issues such as water quality protection, watershed management, and non-point-source pollution control are not yet well addressed in the coastal zone, whether by CZM programs or other governmental efforts . . . [and] there was a plea for elevated attention by the national program office to the importance of the federal consistency rules so that state programs would have greater leverage over federal activities and permitting functions (Hershman et al. 1999, 125).

Notwithstanding the CZMA's environmental and economic balancing edict, growth continues in vulnerable coastal areas, with more than 53 percent of the U.S. population now living in coastal zones (NOAA 2004). Failure to address these water and land use issues through the CZMA structure has import for the proponents of greater federal supervision of land use via the CWA.

The Case and Proposed Structure for Greater Federal Supervision in Watershed Planning

Despite expanded federal regulatory authority under the CWA, the Endangered Species Act, etc., and billions of dollars in grants, most water bodies in the U.S. are still impaired and have not attained the "fishable and swimmable" standard of the CWA (Babbitt 2005, 2007; Duhigg 2009). For many, the main culprit in continued water quality degradation is the exemption of land use decisions, including agriculture, from CWA jurisdiction. Because neither federal nor state governments are able to supervise and regulate local land use decisions, there is an inability to control nonpoint-source pollution and supply degradation. Babbitt, for example, argues that states have been unable or unwilling to supervise and impose strong regulations on local land use planning—particularly on land use practices that generate tax revenues. Likewise, others have made equally compelling arguments about the inadequacy of local protection of wetlands outside of federal jurisdiction,[3] species habitat protection, coordination of supply with new development or adequate regulation of coastal development (Feldman 2007; Herman 1992; Lucero 1999; Neuman 2005; Norton 2005; Waterman 2004; WWPRAC 1998). While federal regulatory authority over point discharges and storm water under the National Pollution Discharge Elimination System's permitting system and over wetlands under CWA 404(d) permitting, when properly enforced, have led to some water quality improvements, these alone are inadequate. The inability of regulatory actions to affect land use practices is the linchpin of the argument for increased federal supervision of state and local land use planning activities.

Dispersed land use and water law at state and local levels contributes to this problem. States administer water laws and rights, and most have largely delegated land use planning authority to their local governments, often creating a disconnect between agencies, jurisdictional authorities, and management scales. Local governments can be motivated by shorter-term perspectives on development and tax revenue, despite intentions expressed in their comprehensive plans, environmental conservation priorities, and actual water supply limits.

State and local governments generally resist any infringement on their ability to determine land uses. Even the 38 states who argued in their *amicus* brief in the recent *Rapanos* case that federal permitting for wetlands adjacent to nonnavigable tributaries should be maintained, made it clear that CWA regulation should not "intrude on the traditional and primary power of States and their municipal subdivisions over land and water use" (Brief of the States of New York et al., Rapano v. United States, 547 U.S. 715 (2006)). Current federal-state partnerships embodied in acts like the CWA or the CZMA attempt to balance state autonomy with both economic realism and environmental protection. But some states do not provide enough water quality protection, sufficient integration of land and water planning, and/or adequate supervision of local government land use decisions, despite minimum federal standards. Because of the joint management responsibility over water in a dual-sovereignty federal system, "federal policy has operated by setting standards and then offering grants to coax and cajole the states into cooperating. This traditional process is at once too prescriptive and insufficiently comprehensive" (Babbitt 2007, 148).

Accordingly, there have been many appeals for a stronger federal role in fostering a connection between land use and water management planning (Arnold 2006). In both his detailed account/memoir *Cities in the Wilderness* and in his follow-up Spring 2007 *Journal of the American Planning Association* piece, Babbitt describes how this role would manifest. While calling for a partnership between the federal government and states modeled after the CZMA, Babbitt (2005) would mandate participation through funding conditionality, linking "federal development assistance with comprehensive environmental protections for water resources" (131) and "conditioning federal infrastructure investment on state land and water planning" (Babbitt 2007, 146). This approach would also be coupled with expansion of the CWA to include water supply issues for comprehensive watershed planning (Babbitt 2005, 130).

Despite its voluntary nature, Babbitt considers the CZMA an exemplar of a strong "federal-state partnership" with respect to fiscal incentives for state participation and mutual power acquiescence through

> a qualified right of veto over the issuance of federal permits for coastal activities such as location of port facilities, offshore drilling, and other developments. . . . The key to this program's success is the way in which it trades a federal role in preparation of land use plans for a state role in federal permitting activities. (Babbitt 2005, 93-94)

Babbitt's proposal is basically "CZMA for every state" combined with funding conditionality.

For such a proposal, however, it is worthwhile to recall the history of the failed National Land Use Planning Acts of the 1970s (Rome 2001; Popper 1988; Weir 2000). The National Land Use Planning Act was designed as "CZMA for every state" and states would have received federal grants for preparing comprehensive statewide land use plans (Kayden 2000). Federal agencies would have been directed to make their actions consistent with adopted state plans. Even voluntary funding for comprehensive state land use plans, however, was considered an excessive federal intrusion into local land use planning. While most versions of the proposed National Land Use Planning Acts and the current CZMA offer(ed) "carrots" for state participation, Babbitt's proposal is differentiated by the conditionality "stick" of federal funding.

Because the CWA already works through federal–state–local partnerships, scholars and politicians propose its amendment and expansion as the legislative vehicle to increase federal supervision of local land use. While not all proponents of amendment agree on all issues, most argue that the CWA should link water quality with water quantity, and water management with land use for a comprehensive, watershed-based management approach (Postel and Richter 2003; Babbitt 2005, 2007). Additionally, the main purpose of CWA amendments would be to reduce nonpoint-source pollution and provide protection for environmental flows. Babbitt (2005) proposes amendment to cause the Environmental Protection Agency (EPA) to "set overall standards and methodologies, giving the states the option to administer the program" (130) using "river protection plans" (so that there is less potential for state-level political wrangling).

Proposed CWA amendments that would create additional responsibility for the EPA in water supply parallel the efforts to strengthen a federal role in land use planning through §404(d) wetland permitting authority for the Army Corps and the EPA. Although the *Rapanos* decision limited federal wetlands jurisdiction, there was an effort in Congress to reinstate federal control over all bodies of water in the U.S. and restore the original intent of the CWA (Editorial 2008). This would have given the Army Corps and EPA land use control over all wetlands and any development project that degraded waters of the United States, reversing both *Rapanos* and the 2001 *SWANCC* case. However, the proposed clarification through a new definition of "waters of the U.S." died in committee.

In contrast to Babbitt's approach to federal land and water linkage, Feldman (Feldman 2007) and the Water Commission (WWPRAC 1998) each propose a unified, forceful federal institution or appointed policymaker with policy objectives informed by watershed/river basin stakeholder input, similar to the TVA and, presumably, similar to the Title II river basin commissions under the 1965 Water Resources Planning Act. Feldman (2007) suggests that

> effective federal water supply planning must overcome agency turf wars by pursuing objectives defined by regional stakeholders, replace fragmented political authority vested in several agencies with a single management framework to set priorities (as with the TVA), and manage multiple needs in an integrated manner . . . [e.g.] mandates over water quality and supply. (56)

Although basin-level input is integral to the success of federal policy-making, the Water Commission (1998) believes "that there remains a need for national coordination of water policy and programs, especially as federal resources decline and the need for priority setting becomes more acute" (WWPRAC 1998, 6-38). Greater federal involvement requires a coherent framework to unify federal water policy.

Despite different emphases, both sets of approaches share two elements that would increase federal supervision of state and local land use decisions. First, the federal government's vast financial resources would be used to force or cajole integrated land-water planning at the state level, including monitoring or supervision of local governments. Second, both would create some mechanism or structure that integrates disparate federal policies and interests. Both the "funding leverage" under a CZMA-type partnership model and the "consistent federal policy" are partial resurrections of the National Land Use Planning Act and the Water Resources Planning Act, respectively. While a full discussion of the ultimate political and planning failures of the National Land Use Planning Act and the Water Resources Planning Act is beyond the scope of this article (see discussions in Plotkin 1987; Popper 1988; Weir 2000; Rome 2001; and Mandarano, Featherstone, and Paulsen 2008), the institutional history is instructive in evaluating a potentially expanded and unified federal role in water and land resources management.

The Case Against Greater Federal Supervision

One of the important considerations for both planning theory and practice is whether federalizing land use issues would actually enhance either local comprehensive planning processes or water quality and quantity allocation. Although water quality has improved in some areas of the country, there are still large water quality and quantity problems associated with disparate federal mandates for water and land use management (Adler 2000). For example, the San Francisco Bay Delta suffers from an ongoing salinity problem that continues to elude resolution, in part because of the "fractured regulatory environment in which nearly two dozen federal and state agencies shared regulatory authority or management responsibility for some aspect of the Bay-Delta system" (Freeman and Farber 2005, 839). These federal agencies with conflicting mandates include the Bureau of Reclamation, the U.S. Fish and Wildlife Service, and the EPA, each administering facets of the CWA and the Endangered Species Act.

Instead of pinning hopes on a consistent federal government exercise of greater coordinated control over the land–water nexus, we argue that integration of land and water would be more effectively undertaken in the flexible and adaptive approach of regional partnerships. We offer five main reasons to prefer a flexible and regional watershed-based planning and governance system (detailed below) to a strengthened federal role. First, it is not possible to establish one federal agency capable of governing water with a unified interest; second, expanded federal regulation through existing total maximum daily load and wetland permitting processes illustrate the difficulties for (local) planning in federalizing land use (even indirectly); third, the federal government's history suggests it wouldn't necessarily prove any better at balancing land development demands with water quality concerns; fourth, a one-size-fits-most policy does not leave room for local and state innovation; and fifth, state water rights law will confound basinwide land use and water supply linkage and management.

Advocates for a greater federal role in linking land and water planning suggest that a federal agency capable of articulating and enforcing a universal and uniform federal interest in water could (and would need to) emerge. But given the current institutional climate, the likelihood is low (Sherk 2005; Adler 2000). There is no single federal agency that governs water with a universal interest; policy and implementation are fragmented among at least a dozen separate agencies with separate laws, mandates, constituencies, and histories (WWPRAC 1998). Multiple agencies with indirect impacts on water quality (i.e., the Bureau of Land Management, the National Park Service, the Federal Energy Regulatory Commission, and the Department of Transportation) would also require coordination (Adler 2000). Consider the three main "water agencies": the Bureau of Reclamation (for Western supply management), the Army Corps (for Eastern flood management), and the EPA (nationally, for water pollution). Babbitt characterizes these agencies' water management as suffering from a "continuing tension between the old forces for development and the new demands for preservation, pitting the Bureau of Reclamation and the Corps of Engineers against the newly empowered EPA" (Babbitt 2007, 147).

Failure to integrate and coordinate disparate federal policies and interests was one of the prime reasons the Title II river basin commissions under the 1965 Water Resources Planning Act ultimately failed (Mandarano, Featherstone, and Paulsen 2008). In discussing the time since the Water Resources Planning Act, Sherk (2005) argues that coordinating and reconciling federal interests in water has become even more difficult, with the accretion of additional layers of federal laws (such as the Endangered Species Act) and interstate conflicts over water supply.

The lack of federal cohesiveness would impede uniform guidance or evaluation of integrated state and local land and water plans. In order for a strengthened federal role to truly impact and constrain local and state land use planning, the federal role and policy would have to be clear and coherent. The consequence is that local governments might be left to wonder to which federal agency or priority their plans should correspond. In addition to managing competing interests for land and water use in their boundaries, local and regional planning agencies might now be tasked with attempting to reconcile incompatible federal policies. Strengthening the federal role in supervising local land use planning could therefore frustrate and complicate local planning efforts, without necessarily improving water quality.

Even if a uniform vision were achievable, there is no assurance that it would actually promote better land-water management integration. The current expanded (albeit indirect) federal role in land use planning through the Total Maximum Daily Load program and, until *Rapanos*, wetlands permitting, is indicative of the confusion and conflict that can result when land use decisions become federalized. Under section 303 of the CWA, states are required to prepare lists of impaired water bodies, and then generate total maximum daily load plans to reduce the pollutant load by water body and achieve compliance with designated water quality standards. Pollutant loads are allocated to both point and nonpoint (or "land use") sources. Although total maximum daily loads are plans rather than permits, the pollutant and water quality analyses to prepare total maximum daily load plans for state implementation involve consideration of present and future land uses. Currently, EPA is expanding efforts (as a result of litigation) requiring states to prepare total maximum daily load plans. This certainly impacts local land use decisions, but the effect is unclear.

Presently, there is no determination of how to address land use decisions in urbanizing/already urbanized watersheds where technology-based point-source discharge permits still result in nonattainment of water quality standards. Under the strict terms of a total maximum daily load, if point-source discharges still exceed water quality standards, there should be no additional land development or agricultural expansion in the watershed. Alternatively, if current land use practices generate runoff to reduce water quality below adopted standards, this should theoretically preclude new urban or industrial economic development requiring discharge permits. The problem is also exacerbated by the CWA's agricultural runoff exemption, which is the dominant contributor to nonpoint-source pollution. Accordingly, "point source dischargers in the same watershed generate significantly less pollution, having substantially reduced their discharges and are now being required to invest in pollution control measures with relatively high marginal costs" (Congdon, Young, and Gray 2008, 221-22).

Third, one of the main arguments for greater federal supervision of local land use decisions is the idea that local governments, competing with one another for economic development and property tax revenues, are unable to

appropriately balance development needs with water quality protection. But the problem that localism presents may not be ameliorated by federal control. Our brief history of federal policy suggests that the federal government is as susceptible as local governments to becoming servants of regulated industries. Any federalized control would still face pressure from developers to approve large projects, and from states and localities that desire economic development. Instead of balancing interests through a local participatory planning process, nearly all large development applications would now involve federal permitting or litigation, an experience common to local governments or property owners in areas already under greater federal control. In discussing past efforts at greater federal centralization of land use programs in the 1970s and 80s, Popper writes, "the centralized programs' attempts to compel, stimulate, or provide incentives for stronger local land use regulation have often proved ineffectual in the face of local resistance" (Popper 1988, 296). In areas where federal agencies supposedly have expertise in land use planning, such as in the U.S. Forest Service, local government interests have already been shown to trump federal efforts to change land use behavior (Sabatier, Loomis, and McCarthy 1995). It is unclear how a federal water agency would succeed where others have not.

The fourth reason against a greater federal role in coordinating land and water planning is that a stronger federal role is more likely to entail a "one-size-fits-most" policy perspective that would not leave room for state and local flexibility (Hoornbeek 2005). According to Ostrom and Cox (2010), "the panacea problem occurs whenever a single presumed solution is applied to a wide range of problems" (452). Several states and localities are currently engaging in creative and innovative approaches to integrating land and water planning (Callies and Chipchase 2007; Kanouse and Wallace 2010; Davies 2007). Space for experimentation in a federalist system means, of course, that some states would balance development and conservation needs with a level of water quality protection below that which other states or interest groups might wish.

But the alternative could result in a structure where local governments would have little flexibility in meeting federal mandates, which often produces local resistance to implementation. As Ostrom and Cox (2010) state in the context of resource management and environmental systems sustenance, "when governments adopt top-down decentralization policies, leaving local officials and users in the dark, stable forests may become subject to deforestation (Banana et al. 2007)" (453-54). The same issue exists for watershed management, where, according to Adler (2000), "a suggestion from Congress and the EPA that such integrated water and resource protection policies should be required would likely face fatal opposition from the outset . . . because it would not take unique local values and conditions into account" (60-61).

The fifth and final reason is the issue with conflicting water law, and the lack of jurisdiction at the federal level. Historically, the federal government has not succeeded in managing interstate water conflicts (Mandarano, Featherstone, and Paulsen 2008; Sherk 2005). With the severance of land and water rights when the federal government began patenting land in the 1800s, leaving water rights to state determination, the federal government effectively abdicated control over water quantity allocation and established a powerful pocket of state autonomy. As Feldman notes in discussing the TVA joint federal and private cooperative venture, states' rights over water law impeded efforts (Feldman 2007, 41). The federal government might encounter two problems associated with states' water laws. First, on an interstate body of water, the federal government could find itself trying to balance two different kinds of water law systems (e.g., appropriative, riparian, and a hybrid of the two) on either side of the water body, with no authority over either. Similarly, on an intrastate body of water, the federal government would have no direct authority over the state's water law system, and consequently, state-permitted withdrawals might conflict with federally conjoined land use and water management planning.[4]

Alternative Policy Framework

Land use and water planning linkages and partnerships are occurring voluntarily at a variety of local and state levels, whether proactively (i.e., social, environmental and political prescience) or reactively (i.e., prompted by crisis, local activism or litigation). While there are national impacts from local actions, such as up-state farming decisions on the Mississippi River that compound the hypoxia problem in the Gulf of Mexico (Nassauer, Santlemann, and Scavia 2005), or water quality in the Chesapeake Bay or Everglades (Babbitt 2005; Adler 2000), the intractable institutional issues we have identified would not necessarily yield to simplified federal solutions.

Rather than expanding federal land use authority, we propose an alternative institutional structure that combines already successful policy components of existing institutions to focus on federal–state–local partnerships, effecting watershed-scale integrated water–land planning. In the following section, we describe both the positive and negative incentives that are likely to induce collaborative, integrated, and flexible planning, superseding localist pressures and enhancing cooperation among local governments rather than imposing a singular, federal top–down structure. Our approach addresses many of the institutional design issues raised in the discussion above, while theoretically offering fewer problems than an expanded federal role.

It is impossible to provide actual, empirical evidence that our proposed design would be more effectual than the proposed federal centralization, largely because there are no

locations in the country that simultaneously incorporate all of the elements enumerated below. Nor do we assert that our approach will be politically easy or able to avoid tradeoffs and problems. New institutional and political structures will inevitably face resistance from multiple interests and stakeholders. However, we hope to show by analogy to the federal–state–local partnerships in transportation and coastal management, as well as existing regional water entities, that the components are elements in existing regulations and governance relationships that have proven at least partially effective.

From a theoretical perspective, the approach we offer is built on the literature on collaborative processes, adaptive governance, and co-management of resources. Historically and politically, it is built on a pragmatic reading of the evolution in regional governance. Legally and institutionally, it is based on a negotiated and flexible approach to environmental federalism. However, it is not a one-size-fits-all strategy; it employs co-management, which "is not necessarily between a monolithic central government and one coherent community. Rather, it is a more complex arrangement between multiple sources of governance, or what has been referred to as polycentricity" (Ostrom and Cox 2010, 454). Polycentricity has empirically generated positive environmental outcomes when the governance structure "fits the local ecology and social context, . . . and whether users consider the system to be legitimate and equitable" (Ostrom and Cox 2010, 454).

Our proposed structure includes four integral components: a watershed-scale management approach; incentivized watershed planning organizations endowed with limited regulatory authority; a watershed quality status-quo option generated by user groups; and interstate compacts to manage agricultural runoff. They are described in more detail, as follows.

Our first component reinforces other scholars' argument that the appropriate planning and management scale corresponds to the watershed or river basin (Babbitt 2007; Feldman 2007; Westcoat 2000; Mandarano and Paulsen 2011). Some federal agencies with a role in water management already operate under a watershed management mandate (e.g., the U.S. Forest Service, the Bureau of Land Management, and the National Park Service), but many either have not successfully incorporated this principle into their practices—notably the Bureau of Land Management (WWPRAC 1998)—or have not yet determined how to do so (Adler 2000).

Consequently, our second component is the creation of watershed-based federal–state–local partnerships, patterned on the current Metropolitan Planning Organization (MPO) structure in transportation. These regional-scale "Watershed Planning Organizations" (hereafter WPOs) would incorporate governance and planning elements of MPOs, CZMA partnerships, and the older HUD-sponsored "A-95" process, retaining flexibility in accommodating regional variation and political needs. The main purpose of these WPOs would be to develop, at a watershed level, multipurpose, integrated land and water resources plans.

Because there are few extant examples of regional water agencies in the United States similar to the one we propose, we are not aware of any empirical literature that compares the institutional structure and performance of these bodies. There is a large and growing literature on the successes and constraints facing watershed partnerships (Sabatier et al. 2005; Mandarano and Paulsen 2011). Internationally, Blomquist, Dinar, and Kemper (2005) used an institutional analysis framework to assess the evolution and outcomes of decentralized river basin–level integrated water resources management. They found that success was contingent on

> the consistency of central government political and financial support for the basin management effort, adequate revenues for the basin organization and the ability to retain those revenues within the basin for water management priorities, effective leadership within the basin, involvement of stakeholders in aspects of resource management that affect them directly, and perceptions among stakeholders of responsiveness and evenhandedness on the part of basin management organizations and officials (Blomquist, Dinar, and Kemper 2005, 28).

Assuming that the findings are transferable, these elements are integral components of a regional WPO, with the caveat that their chosen case studies involved "severe water resource problems" (Blomquist, Dinar, and Kemper 2005, 28).

The two regional water quality and water planning models that provide a basis for our model also resulted from water crises. Having evolved at different times, in response to different water needs, the land use and water planning approaches in California and Georgia are instructive. Despite differences in water law, geography, and precipitating historical events, each state utilizes regional water planning "within a framework of statewide coordination and policy" (Cheong 1972, 272).

Of the two, Georgia's 2004 "Comprehensive Statewide Water Management Planning" Act is starting to improve the regulatory integration for comprehensive water management. The state utilizes a policy of minimum in-stream flow protection; watershed assessments and protection plans; regulated riparianism and associated permitting for withdrawals of a particular volume (Dellapenna 2004); and coordinated statewide and regional water supply planning (O.C.G.A. §§ 12-5-520 et seq., 12-5-31 (Deerings 2011)). The latter approach has unified and incorporated the earlier water management strategies, using fiscal incentives to induce local governments and water authorities to comply with both state- and regional-level plans. The state water plan was generated by Georgia's Water Council, which is composed of appointed members and state resource officials (O.C.G.A. §§ 12-5-520 et seq. (Deerings 2011)). Approved by the General Assembly in 2008, the plan is reviewed every three years, and it enumerates the role and composition of regional water planning councils. According to the plan, the

> water planning councils will be diverse and broadly representative of local governments, water users, and other water-related interests in each planning region. Membership will depend on the existing water-related organizations and institutions in each region as well as the characteristics of regional water resources, water uses, and regional economies (Georgia Comprehensive State-Wide Water Management Plan 2008, 35).

Once comprised, the eleven regional councils draft memorandums of agreement to "establish how each council conducts its affairs including the procedures for decision-making" (Georgia Water Planning Councils 2011).

With support from state-supplied data and consultants, Georgia regional water planning councils are tasked with generating regional water development and conservation plans, which include a full assessment of land uses; local governments; water quality and quantity (i.e., withdrawals, minimum in-stream flow maintenance, etc.); 10- to 40-year projections of water demand, population, land use change, and wastewater; and management practices, among other elements. The plans are then compared with the statewide plan, and approved by the Georgia Environmental Protection Division, which holds planning enforcement power. Local governments and water agencies are responsible for complying with and/or implementing the plans (Georgia Comprehensive State-Wide Water Management Plan 2008, 35).

California also utilizes a bottom-up model for regional governance over water quality, but with less integration of water and land use management than Georgia's approach. As discussed below, California's water supply planning has only recently been linked with land use planning—a 2001 law requires "assured supply" and is implemented from the bottom up (Davies 2007; Kanouse and Wallace 2010). In-stream flow protections have been muddied, and are questionably supported, at best (Dunning 2005). While legislatively embraced, a water transfer market has not been as efficient or active as anticipated, and it has promoted viable urban water conservation measures (Dyckman 2005). California's State Water Resources Control Board, the entity responsible for combining both water quality and water rights administration through the landmark Porter-Cologne Act of 1969 (Hanemann and Dyckman 2009), has effectively separated water quality and water rights administration. On the water quality side, the State Water Resources Control Board oversees nine regional water quality control boards, which have considerable statutorily enumerated planning powers over water quality in the state.

The governor appoints the regional boards, and each must have members with the following expertise: water conservation, agriculture, industrial water use, local and county government, nonprofit resource management, and water quality (Cal. Wat. Code § 13201). Among other responsibilities, the boards conduct long-range planning to maintain water quality for beneficial uses of water (Cal. Wat. Code § 13240). Beneficial uses include agriculture and housing development (Cal. Wat. Code §§ 13050(f), 13241), and the regional boards maintain authority over the quality of both surface and ground water (Cal. Wat. Code § 13050(e)). The plans must conform to the federal CWA and the California Water Plan, much like Georgia's, and must consider input from local governments in their formulation (Cal. Wat. Code § 13240). And like the GA EPD, the State Water Resources Control Board maintains plan approval authority (Cal. Wat. Code § 13245). Once approved, all agencies must comply with the plans, but the regional boards have no direct authority over land use (beyond discharge permitting and enforcement), and no water allocation ability (Disharoon 1972).

In our proposed model, the membership on WPOs could retain the flexibility of the Georgia appointment approach and the diversity of the California board expertise, but the extent of the authority would be broader than either of the two, depending on the state enabling legislation. Like MPOs and the multiple program structures from the CZMA, the exact governance structure would be negotiated at the state level for both pragmatic and federalism reasons. For instance, in areas with existing institutional arrangements or regional bodies for water quality management and planning, these entities could be given the authority to act as WPOs. Federal CWA amendment would allow states to use existing regional bodies or planning agencies, such as Section 208 (area-wide wastewater planning) agencies, watershed partnerships, etc., without the need to create whole new institutions.

But the WPOs' governance structure would also retain some structure that resembles MPOs and exceeds that of either the Georgia regional planning councils or the California regional water quality control boards; namely, that some voting rights for policy and plan adoption be held by elected representatives of units of general-purpose local government (cities, towns, counties, etc.) in the watershed. WPOs, like MPOs, would also have voting positions for state water quality agencies. Federal agency representative(s) could be given voting or observer status, depending on a negotiation between the state and local government representatives. Like the flexibility retained in the coastal management programs under the CZMA and in the MPOs, states can structure the WPOs flexibly according to local needs. They could provide voting positions on the WPOs' policy boards to, for example, watershed partnerships or existing watershed groups, citizens, and/or key watershed stakeholders, as well as representatives of agriculture, industry, and/or the environmental community, as in California.

Despite Georgia's admirable state and regional water planning structure, the process is extremely new (finalized regional plans were due to the Environmental Protection Division on September 30, 2011) and its efficacy cannot yet be tested. California's regional water quality control boards

have had a lengthy period of existence, and water quality has improved in the state (Little Hoover Commission 2009). But from the outset, in examining the mandatory contents for the plans and authority in each of these regional entities, they lack an important element to realize their water and land use management objectives. While Georgia has integrated water quantity and quality in its regional councils, and California has linked water supply with land use planning at the local level and improved water quality at the regional level, none of the regional entities have land use authority. But having authority over both land use and water resources is an integral component of effectual watershed management (Adler 2000, 7).

In our model, the WPOs' regional plans will combine planning for both water quality and quantity with land use, which has yet to be accomplished by existing, sole-purpose regional agencies or by "assured supply" laws (Davies 2007, 1227). Nationally, these state-level assured-supply laws have been the dominant vehicle to link water supply and land use planning in western states and Florida (Davies 2007; Hanak and Browne 2006; Tarlock and Van de Wetering 2006). Although the details and implementation vary, the laws generally require planners and water providers to verify sufficient water to support new development. However, the sustainability and effectiveness of this approach has been debated in the literature. According to Davies (2007), assured supply laws are only effective if they are "(1) mandatory, (2) stringent, (3) statewide, (4) widely applicable . . . and (5) connected to the broader planning schemes" (1229); otherwise, they may actually promote sprawl. Kanouse and Wallace (2010) qualify Davies' argument, showing that in California communities with a water crisis, where the scale of the proposed projects were too small to meet the assurance threshold, the assured supply laws nonetheless "encouraged a more holistic and creative approach to land use and water supply planning, with a strong emphasis on demand reduction" (155). But supply linkage is only one aspect of conjoined water and land use planning; the structure we are proposing must engage water quantity, water quality, broader ecosystem management (i.e., in-stream flows), and local land use planning (Tarlock and Van de Wetering 2006; Adler 2000).

In terms of preparing and adopting a watershed land use and water resources plan, WPOs would have a number of incentives and requirements to attempt to achieve consensus and integrate local government future land use plans. Much as MPOs are required to engage in extensive interagency and intergovernmental consultation in their plan preparation, WPOs would be required to consult with local governments, state agencies, and federal agencies in development of their plans. WPOs might also find that, like MPOs and National Estuary Partnerships, they need a number of scientific and/or citizen advisory bodies to bring joint-fact-finding and stakeholder collaboration into their planning (Mandarano 2008). Each can create their own adaptive management approaches, tailored to their watershed scale and ecosystem ecology. The plans should attempt to present a realistic consensus as to the watershed's future land uses, policy priorities, and major infrastructure projects. Thus, the planning process should be both consultative and collaborative. WPOs would generate their own unified vision, policy, and plan for the watershed, based on existing and anticipated land uses and water issues.

To avoid a repetition of weakness that has historically plagued regional planning and to fully integrate water and land management, WPOs would need to be empowered with some regulatory authority to review and negotiate local government land use plans for consistency and the ability to veto some land use actions that violate the policies and plan. So the WPOs would enjoy limited land use authority, similar to the powers granted to state coastal commissions under the CZMA. While this component seems likely to arouse political opposition from local governments, the alternative of federalizing local land use decisions is no less problematic from the standpoint of local governments. In fact, if WPOs are unable to achieve consensus or are too weak to implement their plans, then federal supervision and intervention would be required. Although the positive incentives towards consensus and collaboration would presumably make a WPO structure more compatible with local politics, the negative incentive of additional federal involvement would also induce cooperation.

To foster consensus and collaboration both between and among local governments in the watershed, and also with regard to federal actions, the WPOs could employ the following incentives. First, federal actions, funding, and permitting (at least partially) in the watershed would need to conform to the adopted watershed plan. This might be the greatest incentive to local governments to achieve agreement: the ability to have partial control over federal actions, as is currently intended in the CZMA, and was proposed in the National Land Use Planning Acts. Already in the MPO structure, the federal government defers decision-making authority to MPOs, as long as they meet certain criteria. Rather than attempting to force all local governments to comply with top–down federal policies or to centralize one coherent federal agency, the ability of adopted watershed plans to bind federal actions would be a major incentive for local and state consensus.

Another incentive and the third component of our model allows the WPOs to produce plans that achieve a "no net degradation" standard (much like the powers states currently enjoy with water quality standards), instead of the "fishable and swimmable" CWA standard. Although the CWA vision is idealistic, it is not actually met in numerous water bodies, and institutionally, the EPA has had to temper its own contaminant setting standards with risk thresholds to accommodate more realistic pollution control (Rosenbaum 2008). Watershed restoration should acknowledge this fact, and adopt a position similar to the one in the South African land

and water constitution, which is "no net degradation" and allows different levels of water quality, depending on viable water licensing (Allan 2003). Based on a consensus reflected in the plan, the WPOs should be allowed to relax the CWA "fishable, swimmable" standard to "no net degradation." However, this compromise would need to be correlated with an enforceable, national scheme to permit only a small percentage of degraded water bodies, while the majority would have to be improved, and polluters would pay to do so. We argue that such flexibility might be a necessary accommodation to achieve consensus in some regions.

Because allowing variations in water quality might raise environmental justice concerns, we argue that federal grant programs could be directed to the most impaired water bodies and/or poorer regions as long as they maintained good-faith efforts at implementation of their plan. While not ideal, we argue that developing planning capacity and consensus in these regions would be an improvement over the current structure.

WPOs would have review authority of any applications for water-related permits, grants, or loan applications from private or public actors within the watershed. Similar to the HUD-sponsored "A-95" review process of the late 1960s (but expanded to permits and not only funding), in which local "councils of government" were empowered to review and make recommendations on local applications for federal assistance for conformity with regional plans, WPOs would review and make recommendations on permits or funds for conformity with the adopted WPO land-use–water plan. Federal agencies could still approve the permit or funds, but only after extensive findings. Local governments whose land use actions did not conform with the WPO plans or who refused to participate in WPO plans would potentially be ineligible for needed funds (much like the Georgia system), and landowners in their jurisdictions would therefore potentially be denied permits. Admittedly, this is a politically challenging concept for local governments, as demonstrated by their resistance to ceding land use authority to regional bodies (Jacobs 1989; Katz 2000). But the exchange of land use control for federal consistency (per the CZMA model) may be sufficiently motivating.

As a means of implementing watershed plans, WPOs would be empowered to establish and participate in watershed-based water-quality and quantity trading systems. In fact, the designation of these regional agencies as capable of managing water quality trading would provide a direct incentive to manage land and water resources in an integrated manner. For example, a wastewater treatment plant could pay farmers to install buffers and nitrogen removal systems on the landscape rather than making costly plant upgrades. This has proven effective in California's Grasslands region of the San Joaquin Valley (Congdon, Young, and Gray 2008). Land developers in regions with already constrained water supplies could pay farmers or households to conserve water, freeing up supply for new development. We argue that this combination of incentives vis-à-vis federal and local units of government would provide the impetus and basis for WPOs to achieve consensus and collaboration.

The federal government's interests would be served and advanced by this WPO structure because federal funds could still be conditioned on compliance with planning and water quality standards. This is similar to the fact that funds can be withheld from MPOs for nonattainment of the Clean Air Act requirements or compliance with state Air Quality Plans. In addition to the social pressure created through the collaborative process described below, local governments would be encouraged to engage through the funding and federal consistency requirements. The federal government's interest would also be served by creating institutions more responsive and close to local governments, and therefore actually able to implement policies and regulations to improve water quality.

To encourage policy effectiveness, we argue that these WPOs should and would adopt collaborative processes to achieve standards for their watershed (within the framework of the state and federal laws), because

> collaborative processes address problems that are just too complex for coercive approaches—problems that span entire watersheds. In addition, there is a fairly widespread perception that traditional and collaborative approaches complement each other. Traditional approaches, such as TMDL, are the "hammer" that encourages stakeholders to negotiate seriously (Sabatier et al. 2005, 10-11, citing Born and Genskow 2001).

Collaborative processes and adaptive governance are relevant in that there is a "need for a new mental model for governance, particularly for controversial, complex, and fast-changing issues" (Innes et al. 2006, 28). Both Focht and Trachtenberg (2005) and Innes et al. (2006) argue that there is too much focus on outcome in a formal system rather than on the relationships that "emerge" from a collaborative dialogue. And yet, for policy proposals to be effective, they must come out of the process with "substantive legitimacy," which is measured by stakeholders' welfare, rights, and fairness (Focht and Trachtenberg 2005). We argue that the WPOs could develop relationships among stakeholders and local governments, thereby achieving both the legitimacy and stakeholder buy-in that federal centralization would not. Innes et al. (2006) argue that the collaborative effort in CALFED, a multiyear, multiagency, federal–state–local process to reallocate and improve water quality in the San Francisco Bay-Delta, is a new water management paradigm.

However, there are justifiable critiques of CALFED and the collaborative watershed management process more broadly. Collaborative processes may avoid the "most complex and difficult problems" (Sabatier et al. 2005, 10), which could lead to persistent watershed degradation. The

Bay-Delta system continues to decline in ecological health, because none of the parties can agree to stop pumping (Hanemann and Dyckman 2009). In addition, when members of a collaborative watershed process have alternative avenues of advantage (e.g., the judicial system), they resort to them when discussion reaches a stalemate, unless there is an entity (e.g., the State Water Resources Control Board) empowered to settle disagreements (Hanemann and Dyckman 2009) or there are outside threats (e.g., federal assumption of authority). In watersheds where WPOs cannot achieve consensus, the threat of greater federal control or lawsuits would be an inducement to return to the table.

Connick and Innes (2003) argue that collaborative processes are "only appropriate under certain conditions" (195) and without the preconditions, they are less likely to succeed. Sabatier et al. (2005) concur. "A closer look at the assumptions in [the collaborative process and policy] literatures reveals that neither pays adequate attention to the way a multi-tiered political context influences the dynamics of participation, institutional change, and policy development" (Weir, Rongerude, and Ansell 2008, 5). Both Connick and Innes (2003) and Sabatier et al. (2005) warn of the difficulty of creating a formulaic approach to a collaborative system.

The final component of this policy framework would involve the development of interstate compacts for improving management of agricultural runoff. While watershed based planning is sufficient for most water quality issues, agricultural runoff represents the most significant interstate water quality issue (Nassauer, Santlemann, and Scavia. 2005; Congdon, Young, and Gray 2008). The federal government under the CWA continues to exempt agricultural uses, and would presumably persist under any uniform federal agency or policy.[5] States would be encouraged to enter into compacts with one another to begin improving agricultural runoff practices through both incentive and regulatory strategies. These incentives and regulations could be reflected and adapted to each WPO plan. However, like the other political challenges associated with realizing this model, many states could be equally disinclined to regulate agricultural runoff. The shared governance structure of the WPO would provide watershed-level pressure to change practices, as urban users seeking CWA compliance would negotiate with their rural WPO representatives.

While the WPO model we propose would increase the likelihood of water and land use integration, our model is imperfect and subject to critique. First, for many national environmental groups, the no-net-degradation component would represent satisficing, and would generate inconsistencies in quality and quantity allocation across watersheds. Because watersheds are not isolated from one another, water quality could remain below desirable levels, and the (in) actions of one WPO would affect downstream watersheds. In fact, the advocacy for a nationally consistent strong federal role is based on this concern. Second, WPOs might suffer the same enforcement/implementation gap that currently plagues existing water management. To counteract this problem, the combination of geographic scale, incentives, social pressure, collaborative processes, and stakeholder buy-in should achieve higher levels of compliance than existing structures. And regardless of governance structure or scale, we recognize that the tensions of balancing environmental conservation and economic development are often intractable (as the CZMA illustrates). Devolving power to WPOs involves risks, and some regions will be more effective than others. However, based on evidence from Blomquist, Dinar, and Kemper's (2005) international models, we suggest that local planning processes that attempt to balance the many interests involved in land use and water decisions, as well as involve local stakeholders, are less likely to produce resistance and more likely to achieve consensus than federal centralization.

Conclusions

Ostrom and Cox (2010) present a powerful warning against the reliance on "panacea" approaches to managing complex natural resources. Complex resource systems, at multiple scales and involving substantial property rights regimes across multiple stakeholders, require a range of solutions and governance approaches. There is no doubt that a closer integration between land use planning and watershed management is necessary, and will manifest in some form. The structure of that integration will have tremendous impact on local planning. The scholarly discussion has recently emphasized an expanded federal role to manage that integration. However, the history of federal interest in land and water planning illustrates that it might be equally susceptible to weakness in balancing development needs and ecological concerns, and unable to integrate local concerns and flexibility. In addition to a history of disparate water governance across numerous agencies and an inability to achieve a unified water management vision, the EPA has been criticized for its systematic failure to enforce even the CWA (Duhigg 2009). As a result, we argue that state and local planners might be better positioned to integrate water and land use planning through regional, watershed-based institutions.

The complexities of any institutional reform—whether an expanded federal supervision of local land use planning or our proposed WPOs—will likely take many turbulent years to settle. In the meantime, local and state planners can take advantage of the uncertainty and implement innovative, adaptive local responses to bring land and water planning in closer cohesion. To do so, they will need to clarify property rights in water systems, and enforce their existing regulatory and incentive-based tools at different scales of government.

In an apt statement at the end of a July 2009 holding cutting off Atlanta's water supply from the Army Corps' Lake Lanier, the judge said,

> The blame for the current situation cannot be placed solely on the Corps's shoulders. . . . Too often, state, local, and even national government actors do not consider the long-term consequences of their decisions. Local governments allow unchecked growth because it increases tax revenue, but these same governments do not sufficiently plan for the resources such unchecked growth will require. Nor do individual citizens consider frequently enough their consumption of our scarce resources, absent a crisis situation such as that experienced in the ACF basin in the last few years. The problems faced in the ACF basin will continue to be repeated throughout this country, as the population grows and more undeveloped land is developed. Only by cooperating, planning, and conserving can we avoid situations that gave rise to this litigation. (In re Tri-State Water Rights Litigation 2009, 94-94)

We concur. In this article, we have argued that an increased federal centralization of water and land use is unlikely to be the best institutional design to resolve these conflicts. Instead, we argue that a polycentric regional structure between watershed users and local, state, and federal governments, however imperfect and built on the positive attributes of existing partnership-governance models, offers a better approach to integrate and improve water policy and land use planning.

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Notes

1. One of the many, but most comprehensive, commission reports was generated by the Western Water Policy Review Advisory Commission in 1998. According to the University of New Mexico, "The Commission members were appointed by President William J. Clinton, and chaired by University of New Mexico School of Law Professor, Denise D. Fort. A listing of Commission members is included in the Final Report. The Commission's work was done through public meetings, research and symposia, and with the assistance of experts. The final report of the Commission provides an overview of the status of water in the Western United States as of 1998. The report recommends that the federal government support watershed and basin innovation, and shift management toward stakeholder involvement and coordination of agencies along hydrologic rather than political lines. Existing federal programs should be integrated at the watershed and basin level. While continuing to respect existing property rights, federal policies must change how we address tribal rights, acquatic ecosystem degradation, land use, protection of farming and ranching communities." See http://repository.unm.edu/handle/1928/2748.
2. Currently, thirty-five coastal and Great Lakes states and territories participate in the program; Illinois consistently fails to qualify for certification, although it is working with the National Oceanic and Atmospheric Agency and gets counted in the thirty-five. These are Alabama, Alaska, American Samoa, California, Connecticut, Delaware, Florida, Georgia, Guam, Hawaii, Indiana, Illinois, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, New Hampshire, New Jersey, New York, North Carolina, Northern Marianas, Ohio, Oregon, Pennsylvania, Puerto Rico, Rhode Island, South Carolina, Texas, U.S. Virgin Islands, Virginia, Washington, and Wisconsin (NOAA 2011).
3. For example, only twenty states have wetland protection statutes: Connecticut, Florida, Indiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, Tennessee, Vermont, Virginia, and Wisconsin (Brief of the States of New York et al., Rapanos v. United States, 547 U.S. 715 (2006)).
4. In theory, the federal government could reassert jurisdiction over states' water law systems through the CWA, simplifying the complicated, piecemeal, and at times disparate bodies of law across different states. But such an action would be politically alienating, particularly for western states.
5. According to Congdon, Young, and Gray (2008), this is a fallacy, and "an important first step in controlling nonpoint source is to dispel the misperception that nonpoint source pollution is necessarily diffuse and therefore difficult or impossible to manage or regulate. This perception is embodied in the language of the CWA and has resulted in an approach to nonpoint source control, both by the EPA and the states, that is limited to planning and voluntary implementation of pollution abatement measures" (226).

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