Overcoming Barriers to Collaborative Transboundary Water Governance
Identifying Local Strategies in a Fragmented Governance Setting in the United States

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Scientists and policymakers increasingly recognize the critical dependence of urban and agricultural economies and livelihoods on mountain systems. Mountain systems feed critical watersheds, provide diverse commodities, enable recreation, and host competing settlement uses that also affect downstream water quality and quantity in aquifers, lakes, and streams. Many scientists from diverse disciplines are focused on the problem of how to govern common water systems that are subject to diverse—often competing—property regimes, organizational/agency interests, and national, local, state, and indigenous jurisdictions. Given the political obstacles to creation of nested organizational authorities, the current literature suggests that organizational actors may collaborate based on water’s shared importance and build voluntary systems of networked governance that produce beneficial institutional relations and political regimes. Barriers to this ideal of collaboration include competing legal rights, identity politics, and state or national boundaries at larger scales. A key question arises: How can staff of relevant agencies, who are concerned about the threats to environmental goods, work toward cooperative governance when certain barriers impede collaboration between their organizations? We explore this question based on the case example of a complex aquifer and related river system in northern Idaho and eastern Washington that are transected by competing state, tribal, and local jurisdictions and are impacted by historic mining pollution, deforestation, and recent amenity-driven urbanization. Exploratory interviews with agency actors, document analysis, and observation of collaborative meetings confirm that individual employees can be key actors in developing transboundary governance, despite legal and organizational impediments to collaboration between their organizations. The case supports recent literature on scalar politics that shifts the emphasis away from ideal structures and focuses instead on better understanding of the ways in which creative actors may build collaborative institutions within existing structures.

Keywords: Transboundary; water resources; collaboration; Rocky Mountains; regional planning; agency; ethnography; aquifer.

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Introduction

The Millennium Ecosystem Assessment identified the importance of mountains to global water supplies, yet it also highlighted the diversity and diverse interests of those who depend on these and other mountain resources—including forests, minerals, recreational space, etc—as well as the competing sovereignties, jurisdictions, and uses in play (Debarbieux and Price 2012). Increasingly, participatory and collaborative approaches to resource management are being “scaled up” for application to large, complex mountain and watershed systems, based on their shared value and importance to surrounding and downstream communities (Bergman and Bliss 2004; Berkes 2010). Water resources are especially difficult and complex to manage, because they cross many jurisdictional boundaries and areas controlled by diverse political organizations (Kilot et al 2001). The literature proposes numerous structural solutions to water-resource governance, ranging from multiple-stakeholder institutions (Heikkila and Gerlak 2005) and organization around geographic, social, and natural systems (Hamilton and Selman 2005) to formal and informal interagency networks and the design of legal and treaty frameworks (Lockwood et al 2010).

Another body of research suggests scaling up voluntary collaborative processes (Innes and Booher 2010; Lockwood et al 2010) to encompass larger geographic areas, in order to promote social learning among organizations that manage complex natural and social systems (MacFarlane 2000; Bergman and Bliss 2004;
These studies have focused on collaborative efforts to manage watersheds and other resources. However, collaborative resource-management institutions and decisions are known to face impediments at larger scales when relevant actors are accountable to different laws, rules, and organizations (Margerum 2008). Rather than seek to identify and transfer the correct transboundary management structures or processes to different places, a synthesis of the 2010 Perth conference on mountain systems (Greenwood 2012) emphasized the need to better understand public decision-making processes in order to help agencies develop workable and contextually appropriate management systems. In a survey of mandatory and collaborative institutions for transboundary water governance, Heikkila and Gerlak (2005) identified the importance of leaders and policymakers who support cross-institutional collaboration and create an external environment that enables this. However, recent research on scale and institutions suggests that actors may establish new relationships and institutions spanning landscapes and various jurisdictions, eventually leading to collaborative decision-making networks (Booher and Innes 2002; Agranoff 2005; Nigel 2012; Norman et al 2012). Based on a North American case study, this present article builds on this recent research by addressing the following question: How can staff of relevant institutions (Forester 1999; Morrison 2006) by organizational actors who are working to transform relevant institutions (Forester 1999; Morrison 2006) by means of “ad hoc” regionalism (Hamin and Marucci 2008).

The North American Intermountain West—specifically, the I-90 transportation corridor from Spokane, Washington (47.6589° N; 117.4250° W), through northern Idaho near Coeur d’Alene (47.6778° N; 116.7794° W)—provides a perfect example of the challenges of mountain and water system governance. Rapid urbanization and exurban development in the region compete for the same water that sustains forests, lakes, aquifers, recreation, and Native American cultures. Regional development extends along transportation and river corridors, spanning multiple federal, state, tribal, and local jurisdictional boundaries and management authorities. The watershed is also being transformed by a pattern of adjacent amenity-based development (Travis 2007) and related demand for water resources. In order to learn how water governance challenges are being addressed in the region, interviews were conducted with organizational actors who are working to transform relevant institutions (Forester 1999; Morrison 2006) by means of “ad hoc” regionalism (Hamin and Marucci 2008).

Based on interviews with an initial set of key informants in the I-90 corridor, the present article explores how managers, planners, decision makers, and stakeholders perceive the region, identify barriers to collaboration, and implement strategies to work more effectively across boundaries. The present findings reveal local government and state actors who, as “creative strategists,” work together across state and legal boundaries in an effort to overcome legal and political impediments to regional resource conservation. These initial findings are consistent with recent literature emphasizing the importance of strategic behavior and human agency in building commitment to transboundary governance of mountain systems on behalf of water resources.

**Case and methodology**

The situation in the I-90 corridor, extending east from the urban area of Spokane, Washington, through Coeur d’Alene, Idaho, and on into Montana (Figure 1), illustrates the complex challenges of water and land-use governance in contexts of fragmented governance and rapid changes to mountain systems and their watersheds. Part of the inland Rocky Mountain region, the area’s development is diversifying to incorporate increased lakeside and mountain recreation and construction of second homes, in addition to mining, timber, and agricultural production. As indicated in county comprehensive plans, the populations of the adjacent counties of Kootenai, Idaho, and Spokane, Washington, have grown rapidly in recent years (Table 1): In the last decade, Spokane County grew 15%, and Kootenai County grew 34%. Exurban consumption of mountain landscapes in the Rocky Mountain West has been occurring at 11 times the rate of landscape consumption associated with traditional suburbs (Brown et al 2005). Over the past 2 decades, thousands of new parcels have been created for second homes and recreational use in rural areas of counties throughout the I-90 corridor. Rural development in the area occurs in platted subdivisions around lakes and through informal and continual private lot splits, which are later developed with individual water and wastewater systems.

The region’s major water resources include the Rathdrum Prairie Aquifer (RPA), the Spokane River, and Coeur d’Alene Lake (Idaho Water Resources Board [IWRB] 2011) as well as surrounding lakes, Coeur d’Alene tribal homelands, and mountainous national forests. To the east of the region lies the Silver Valley area, the largest US silver-mining area and a Superfund site that is undergoing a mining waste cleanup process due to lead and other metals that contaminated downstream rivers and Coeur d’Alene Lake. From the lake, the Spokane River flows through Spokane, Washington, and is fed by both the lake and the underlying Rathdrum Prairie Aquifer, which supplies water for urban and agricultural uses. Recharged by the mountains and other lakes to the north, the aquifer is locally perceived as being abundant, but it is threatened by expanding urban and exurban...
development over the shallow and sandy surface of the Rathdrum Prairie. The levels and water quality of downstream rivers in Washington are affected by the level of the aquifer and by agricultural and urban waste treatment in Idaho. Interactions such as these are important to understand when seeking to maintain river flows during dry months or seeking to meet both urban and agricultural irrigation needs (MacInnis et al. 2009; IWRB 2011).

Adding to the complexity is a tangled web of overlapping state and federal responsibilities and local and tribal jurisdictions (Figure 2). Although the US Environmental Protection Agency (EPA) establishes water-quality standards for point and nonpoint source pollution, each state and tribal government maintains different regulations. Whereas land-use and infrastructure decisions are the responsibility of local city and county governments (Brooks 2010), minimum lot sizes for private septic systems are the responsibility of state-enabled health districts. In rural Idaho, numerous special service districts provide water-resource services outside of cities. However, collaborative water-governance efforts are also emerging in the region. Examples include the IWRB’s Comprehensive Aquifer

| TABLE 1 | Population growth and rural land parcelization in the Spokane–Coeur d’Alene corridor. |
|-----------------|-----------------|-----------------|-----------------|-----------------|
|                | Population growth 2000 to 2010a) | Parcels outside the urban growth boundary in 2010b) |
|                 | Number of land parcels | Average parcel sizec) |
| **Spokane County land area (2839 km²)** | Approximately 70,000 or 15% | 53,877 | 7 ha (1335.5 m² per unit for platted subdivisions) |
| **Kootenai County land area (2115 km²)** | Approximately 31,000 or 34% | 28,068 | 10 ha |

a)Approximations using county plan and assessor data and US Census quick facts.
b)Idaho has “Areas of City Impact,” whereas Washington defines “Urban Growth Boundaries.” Also, both counties distinguish formal platted subdivisions from lot splits exempted from formal surveys, which distorts density figures.
c)Platted subdivisions may have community water services; rural parcels, not always surveyed, are usually on private wells and septic systems.
Management Plan (CAMP), created through a joint management board comprising a diverse set of stakeholders and experts (IWRB 2011); the Coeur d’Alene Lake Management Plan, administered by the State of Idaho and the Coeur d’Alene Native American tribe; and the Spokane River Forum, a civic group (Figure 3). Various political and regulatory agreements and processes are also very relevant, including: a memorandum of agreement on aquifer levels signed by the states of Idaho and Washington; a unified land-use code revision in Kootenai County, Idaho; the Washington State Growth Management Act; and various development regulations meant to protect the aquifer.

Between 2010 and 2012, students and faculty interviewed approximately 20 key informants, including city and county planners, local elected officials, conservation and regulatory agency employees, water purveyors (water utility system managers), and 1 attorney. Some of the informants were also members of civic water advocacy groups in the region. All were asked to characterize water issues in the region, to identify barriers to working collaboratively on behalf of the watershed, and to describe the strategies they use to overcome these barriers and implement “good” decisions. In addition to analyzing the interviews, we conducted participant observation of 10 meetings of county governments, watershed groups, and river basin commissions, at which planners and managers discussed how to address the shared aquifer and surface waters in the regulatory context of Idaho and Washington. Further, interviews conducted by Washington State University students, under the guidance of Dr Todd Norton, provided additional insights into the perceived scale of the water system.

To aid analysis, the researchers coded the transcriptions of the interviews and meetings according to categories such as perceived issues, obstacles, strategies, and frustrations regarding collaborative efforts, as well as
recommendations. In the following, illustrative interview excerpts and corresponding analyses are provided based on the coding. They reveal how those working in the area view the larger water system and how they negotiate legal and political constraints—often stemming from the very institutions they work for—in order to work toward collaborative and transboundary water resource management at larger scales.

Findings and discussion

Here, we summarize the results from the interviews, participant observation, and document analysis into 4 categories: (1) perceptions of the “region,” (2) barriers to collaboration, (3) strategies to overcome barriers, and (4) the role of city and county planners and other professionals. The results indicate the many issues related to water concerns, and the efforts being made to overcome political, administrative, and legal constraints on protection of water resources. Given the differences between state and local laws and administrative procedures, similarities found between actor strategies are of particular interest.

Perceptions of the regional water system

Researchers involved in the project view the broader “region” as the geographic area defined by the relevant water systems. Several staff and managers held a similar system perspective and were aware of scientific studies on threats to that water system. Two comments are illustrative:

We are making poor decisions about our water. That’s what I’m more concerned about than anything, particularly in Idaho. That the politics of water is a darn poor thing to be looking at when our future, our kids and our grandkids are so dependent upon us showing good stewardship.... We should apply the standards that are set up by the state, the federal, the counties, and the local areas. From the Idaho side, you know, we have a prolific aquifer and it flows and goes—going across the state line just complicates everything that goes along with it. And most of the flow issues—actually all of the flow issues are on the Washington side. And Idaho—we have no shortage of water. But in the river, there are shortages. There are seasons of low flow, which changes the temperature of water, which allows for the fish habitat and everything else like that. So where we put our development could impact those flows.

Some informants described the relevant “region” in very broad geographic terms, as spanning from Canada to Oregon and Washington to Idaho. Others described the “region” only as the area relevant to their specific job. Differences in the perceived regional scale of the watershed appeared to be related to the informants’ professional role and the purpose of their employing agency. City and county planners, for example, often spoke of the larger regional pattern of exurban development, registered land divisions, wells, and septic systems in both Spokane County (Washington) and Kootenai County (Idaho), each mentioning a former position held in another jurisdiction or state. Managers of wastewater and water systems in city, county, or special districts, on the other hand, defined the problem more in terms of their expertise and professional role in a particular agency: for instance, describing the cost of extending requirements to meet EPA standards. Being upstream (Idaho) or downstream (Washington) appeared to affect informants’ perception of the problem regarding water resources and their goals of collaboration. Washington-based informants wanted Idaho to ensure river water supplies, which are heavily used for recreation, whereas Idaho-based informants were more concerned with water quality and described water supplies as being abundant. As a result, when employees of different agencies do discuss collaboration, they frequently have different interests and goals in mind.

Administrative, political, and legal barriers to collaboration

Informants described the negative effect of administrative, political, and legal barriers on what they perceive as a need for bistate and intralocal collaboration around water resource management. For example, land use and on-site waste disposal responsibilities are divided between state and local-level authorities, as well as between state agencies:

\[\text{We rely at this point on existing rules. So we rely on working with Panhandle Health District on their wastewater rules for septic tanks and individual drain fields. We work with DEQ [Idaho Department of Environmental Quality] on lagoon issues with their...}\]
existing regulations. We work with Kootenai County on their Site Disturbance Ordinance. The water and everything like that is governed by other jurisdictions, Idaho Water resources, Pan Handle Health, Idaho DEQ, so we [Kootenai County] work with them in partnership, but their regulations and other things guide those. We just have to manage that within our land use rules and regulations.

City and county planners are responsible for advising their policymakers on sustainable land-use practices, but, in Idaho, local governments lacked the authority to manage water resources, constraining their legal options for limiting development that could affect the aquifer. Rural development occurs in platted subdivisions around lakes and through informal and continual private lot splits, often served by private wastewater systems and wells. As shown in Table 1, Kootenai County had more than 28,000 nonagricultural platted and unplatted parcels (nonsurveyed lot splits) registered in rural (nonurban service) areas in 2010, with an average of rural parcel size of 10 ha. Spokane County had approximately 54,000 such parcels with a higher density and smaller average rural parcel size of 7 ha (rural refers to parcels not in approved subdivision plots). About 80% of these parcels do not yet have structures, indicating problems that future growth could pose for ground- and surface-water quantity and quality (Figure 4).

Planners and managers stated that limited agency resources present barriers to implementation of laws to protect water resources and hinder collaboration with local planners and purveyors:

I think people try to take care of their own backyard as much as they can—given the resources—everybody has been cut. The agency [Washington Department of Ecology] on this side has had 4 or 5 positions cut recently. They are barely able to do the work they need to do in their own state let alone try to bring the conversations across state lines.

One common complaint about collaboration is its requirement for long-term commitment and resources. Margerum (2007) discusses transaction costs, such as time and resource commitments, as potential constraints on collaboration. However, informant comments also illustrate their desire for intergovernmental collaboration. Structured and formalized collaboration typically exceeds the demands of current regulations and requires much more investment by agency employees and their colleagues. Informants commented that they frequently collaborated with peer professionals in the other state, despite political and cultural resistance to policies that increase regulations on use of private property or limit the use of natural resources:

I think you get an idea for the resistance on the unified code. It’s a big deal, and it’s really tough to get folks to see that regulations on your private property are reasonable.

What’s it going to cost me to do these behavioral changes? That’s always the barrier to collaboration, particularly in north Idaho. Private property rights are a big deal…. So voluntary collaboration really takes a lot of work. It takes some good thinking. It takes feedback from the community about something they don’t like and is not working, so you adjust it, so it’s continual.

While recognition of interdependence is a precondition for collaboration, informants said that formal agency collaboration is discouraged by legal conflicts among the EPA, the state of Washington, and the state of Idaho over enforcement (in Idaho) of Washington’s water-quality standards (downstream):

I look at water as a regional resource and as one we have to care for, and I’m gravely concerned about what’s going on in the greater region…. I think it’s the nature of the whole process that the EPA has for doling out permits is that [it is seen as] a zero-sum game, some are going to win and some are going to lose. The process in and of itself has created unnecessary tension, unnecessary [division] that has split this region (which is symbiotic in nature) down the middle. There is a Washington side and there is an Idaho side, and everyone is talking about that; it has created a lot of unhealthy discussion that’s not necessary because if the Washington side wins and … Idaho is perceived to have lost, then the whole area loses. We have the ability to grow as well and create employment space just as well as Washington does, and if Spokane thinks they have won and plain [on] creating all kinds of economic development, they are not going to be able to house all these people, some of them will come from Idaho.

Many state and local employees have joined water advocacy groups or helped organize bistate breakfast meetings for elected officials and business leaders at which heads of Idaho and Washington state agencies have been featured as speakers. After one such meeting, an organizer commented on his strategy of shaming leaders into collaboration. “I hate to see a winner and loser when we have 2 states—professional people need to sit down and resolve their differences.” Another agency manager talked about playing numerous roles on city planning and zoning commissions in a previous position in the US Forest Service, where he witnessed the impacts of timber cutting on downstream sediment. Given the legal obstacles to formal collaboration, the strategies employed by agency managers and local planners to protect water are especially interesting.

Overcoming barriers
The interview results revealed 2 broad reasons for professional collaboration across boundaries. One reason is structural. For example, when certain regulations or processes require collaboration, or at least cooperation or consultation, between agencies in order to meet standards and maintain compliance. The second reason is individuals’ professional and ethical commitment to
serving the public interest. Informants revealed many voluntary individual and collective strategies they use to reach across administrative and jurisdictional boundaries.

For example, a review of state and local documents indicates that Washington State laws require counties to provide water and sewer services outside of town limits, while Idaho relies on special districts to provide these...
services in nonurban areas. However, all the relevant actors recognize that the entire regional economy depends on protecting amenities and water resources. The presence of a state boundary in the region adds a layer of complexity to relevant actors’ daily work, to political and legal decision making, and to research efforts to understand regional dynamics:

The septic system really did have control in Idaho and it made them put in their sewers. And that created an economic incentive to avoid sprawl because you have to have your agreement to serve from public systems or the permit to install a septic system. Washington didn’t do anything like that. The Growth Management Act really hoisted that on them…. We [Idaho county planners] ask for input if something is going to happen adjacent to the border, for example, we need them [Washington] to comment if it’s, say, 300 feet (~91.5 m) from the border.

This reliance on bigger communities for services, such as wastewater treatment, is foundational to intergovernmental relationships. In Washington, Spokane County must finance wastewater systems for subdivisions outside city boundaries, whereas Idaho’s Kootenai County requires that rural subdivisions be served by special districts that are organized for that purpose. Public water and wastewater system managers commented on efforts to control the allocation and pricing of this resource:

We have 13 major water purveyors in Spokane Valley [a small Washington city near Spokane]: So it does make the coordination of water—to provide water—very difficult, especially in terms of understanding the infrastructure out there. There are different levels of sophistication with the water districts. Because some of them are very small and don’t have a staff. Or there are 2 water districts that share the same manager.

Planners and managers explore collaboration to reduce the unit costs of meeting stricter standards for nutrient loading in surface waters. Planners and managers in Idaho and Washington are working to control the location of wells and on-site and public wastewater systems within 2 different sets of state planning regulations that govern the relative authority of counties, unincorporated county developments, and larger cities.

Urban wastewater treatment is interdependent, but planners and purveyors have to circumvent Idaho leaders’ opposition to compliance with Washington’s downstream standards when working on efficiency plans to address those standards. Despite different state land-use and health laws and political struggles between cities and county leaders over infrastructure financing and growth, both Kootenai and Spokane County planners are trying to control exurban growth to protect rural character and encourage infilling by making corresponding updates to their county and city comprehensive plans, with the goal of easing service provision and preserving the rural character of certain areas:

And with our new comp plan that we adopted in 2010, it lays out the fact that we want to have more urban growth inside the cities instead of outside the cities and that’s where we are encouraging growth to happen—inside the cities.

Although county planners in both Spokane and Kootenai Counties pursue a policy of concentrating growth in urban areas, county government officials often encourage rural growth in order to help pay for wastewater treatment to meet state and federal water-quality standards. Planners expressed frustration with the mismatch between environmental goals and fiscal incentives. In fact, many planners had worked in both states and emphasized how they encouraged state and regional agencies to enforce regulations to protect water resources.

Manager and planner strategies: Agency employees described working together across boundaries on behalf of the public good, despite legal, institutional, and social barriers to this. Water purveyors and managers of specific agency operations spoke of strategies they used to comply with more stringent water-quality standards while facing declining budgets, whereas planning professionals spoke of needing collaboration on behalf of more comprehensive water system conservation. City and county planners provided broad perspectives on water governance issues. This perspective seemed to arise from the fact that planners, by the very nature of their jobs, are involved in both social and environmental issues:

Quality of life and view protection [are] huge. People move here for the amenities like the trail system, the natural beauty, and the parks system.

It’s not so much the [water] supply…. I think part of what happens in some of these instances is development is coming closer to those wellheads, and they risk contaminating those.

Our job as planners is to facilitate [the] process and to gather information, so whatever we’re working on, if it’s directly related to water resources, we just try to gather as much data and information as we can to ultimately inform the decision makers: [We] help the public understand the issues.

Planners provided particular insights into development issues and how development relates not only to water availability but also to how water is controlled, managed, and provided to citizens and industry. As described in collaborative and deliberative planning theory (Forester 1999; Innes and Booher 2010), planners are information brokers who help to ground abstract scientific processes or regulatory requirements in the reality of practical situations and local government capacities. They collect and analyze information and scenarios for consideration by councils or boards. Many planners reported that their professional ethics and responsibility for water resources transcend their
particular duties and agency role, and many had joined or advised regional bodies such as the Spokane River Forum and the Idaho aquifer study group (CAMP):

So in our CAMP process, yeah there’s [a] problem over here, but it’s not all from the Idaho side. You really need to work on the Washington side to address these issues as well. We’re willing to be a partner by looking at our growth and to not put it in a place where we have those low flows.

It’s critical that we have those relationships because I can’t keep up with all of the meetings. Pretty much anything going on—and all these people—know my background—and they call me if they think I should know something…. The foundation has been laid, but it’s a challenge to keep it going, there is a lot of cooperation involved even though a lot of times it’s cities vs counties.

Collaboration between employees at different agencies appeared to rest on personal relationships and on the need to share information or resources. It was even revealed that many planners had worked for other jurisdictions in both states over the course of their careers, and they were fully cognizant of shared challenges and political differences. Many were alumni of the same graduate program in eastern Washington. As professionals committed to a code of ethics dedicated to the public interest, they saw their job as that of guiding development and protecting natural resources for long-term regional sustainability, not merely fulfilling tasks defined by superiors. Such relationships and informal professional networks can provide a foundation on which to build more integrated and complex partnerships for transboundary water resource governance, as suggested by the political geography of waterscapes (Nigel 2012).

Planners provide cross-disciplinary perspectives valuable to both researchers and practitioners. Insight into the role and importance of planners in water governance is arguably the most interesting and unique result of the present research. Forester (1999) and Morrison (2006) have discussed the importance of planners’ involvement in guiding sustainable, regional development practices. This finding does not minimize the frustration many informants expressed regarding the political and legal barriers to management of regional water resources. The Idaho legislature had recently defeated a bill that would have given the regional health district more strength in enforcing critical on-site waste disposal requirements to protect the aquifer. Informants often suggested that Washington and Idaho should have a compact or formal agreement to work together on water. Despite existing frustrations, legal conflicts, and political barriers exacerbated by EPA standards and upstream and downstream power struggles, the observations and interviews described here suggest that collaboration can emerge even without the type of formal collaborative groups and facilitated processes that are frequently studied. This exploratory research suggests that, even in situations where there is a complex, layered, and multiscalar governance system, relevant actors find ways to work collaboratively across boundaries to reach management goals and meet public needs. Further, governance designers should strategically utilize planners’ unique positions within communities to help bridge different disciplines, agencies, stakeholders, and public perspectives.

Conclusions and implications for governance practice

The initial analysis of this case shows people’s willingness to work collaboratively across political and institutional boundaries in order to protect water resources. Achieving transboundary resource management is not simply a function of creating new institutional arrangements or the legal environment for such arrangements. In the I-90 corridor of the inland Rocky Mountain West, there are indeed many obstacles to collaboration across state or tribal jurisdictional boundaries. In politically conservative or contested mountain landscapes such as this, support should be given to studies, meetings, and specific projects that foster institutions and skills that may be used when opportunities for collaboration arise. While legal, political, and administrative rules clearly set limits on transboundary collaboration, more research is needed on human agency and the strategies people use to collaborate within or in spite of broader structural constraints.

This case study also suggests that professional communication and collaboration networks may precede and encourage collaborative governance. It appears important to examine the real possibilities for collaboration in each case, rather than to debate the merits of voluntary collaborative or structural and regulatory approaches to transboundary governance of mountain and water resource systems. Much of the emerging literature on transboundary river basin and watershed management tries to scale up lessons learned from collaborative resource management in order to structurally formalize the representation of different stakeholder interests and types (Moore and Koontz 2003; Koontz and Johnson 2004). As suggested by Forester (1999), Healey (1999), and Innes and Booher (2010), those working within government agencies may be creative contributors to, rather than obstacles to, institutional development spanning complex landscapes. Future interdisciplinary research by planners, geographers, political ecologists, and human ecologists should further explore the role of human agency and strategic behavior in fostering collaborative practices, even within the constraints of fragmented governance systems. Recent work on waterscapes, new institutionalism, and scalar politics (Hamin and Marucci 2008; Merry and Cook 2012; Nigel 2012) provides useful frameworks for understanding how transboundary institutions may emerge from the creative agency of employees in the very
organizations seen as standing in the way of transboundary governance. More research is needed on the motivations and goals of individual institutional actors in these contexts; opportunities for increased collaboration may be missed if researchers simply assume that “the state” is resistant to change and that only voluntary civic groups are capable of creating collaborative approaches.

Internationally, transboundary governance is also hindered by insufficient local, state, and national government capacity, accountability, and legitimacy. Rather than simply pursuing an idealized collaborative model, this study suggests the value of understanding how professionals work within and among their agencies to overcome barriers to collaborative governance, an important insight for both researchers and practitioners.

Fragmented governance systems constrain collaborative working practices. Broader factors, such as a region’s economic situation or the attitudes of community members, also shape opportunities for collaboration in practice. However, as indicated in the present study, staff of different (government) agencies may be willing to collaborate and overcome fragmentation where opportunities arise. This could also bear important implications for potential collaboration with other formal and informal (eg civil society) leaders. In regards to the I-90 corridor, the present authors recommend that future research be designed in the form of regional “participatory action” case studies tailored to specific problems, requiring specific collaborations. For example, universities could bring together tribal and county governments to address land use, or they could bring together health districts, state agencies, and county officials to review rural development rules. Researching human agency in institution building could improve scientific and practice-oriented understanding of transboundary governance, inform strategic behavior, and shape policymakers’ rules and recommendations.

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