Embracing Watershed Politics

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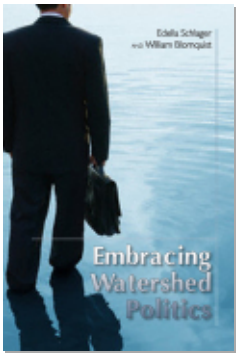

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A Rational Embrace?

> An institutional structure that realigns but does not supersede existing authorities is emerging, together with a shared perception of the possibilities and conflicts implicit in managing resources whose requirements are partly incompatible. The goal is an ecologically sustainable salmon population coexisting with an economically sustainable hydropower system. An optimist sees in the still incomplete story of the Columbia basin a social system searching for a path to that goal of dual sustainability; a pessimist sees resistance to the changes needed before sustainability can be realized.
>
> KAI N. LEE (1995, 214)

In the preceding chapters, we have paired analytical discussions of political topics in watershed management with case studies of the institutions that currently exist in certain locations in the United States. We begin this closing chapter with a consideration of those case studies as a group—what their similarities and differences reveal and how those lessons relate to the broader themes of the overall book, beyond the connections that were drawn in the particular chapters in which the cases appeared.

The cases do not represent "successes" and "failures" nor were they chosen for that purpose. It is not our intention to show that the institu-

tions in some cases have worked well and those in other cases have worked poorly. All of the cases—the Santa Ana River watershed in Chapter 1, the Platte River Basin in Chapter 3, the Columbia River Basin in Chapter 4, the San Gabriel River watershed in Chapter 5, and the Delaware River Basin in Chapter 6—exhibit a mix of successes and shortcomings.

To say that is to invite questions of what we mean by successes and shortcomings and what criteria we are using for evaluation. As one might expect given the nature of resource management in a watershed or any other social and ecological system, a mix of criteria is involved. Some criteria for assessing success have to do with the conditions of the water resource per se—whether declining streamflows or groundwater levels have been stabilized or reversed, whether contamination incidents have been remediated and water quality protected or improved. Some have to do with the other natural resources associated with the water resource—the protection or restoration of fish populations or migratory bird habitat. Some have to do with the human communities associated with the water resource—whether conflicts over allocation of supplies are addressed and resolved, whether economic uses have been sustained, whether the watershed continues to support local communities. Some have to do with the political character of the watershed governance and management institutions themselves—whether they provide meaningful opportunities for addressing concerns, expressing values, participating in decisions, and holding decision makers accountable. Last and definitely not least, some criteria have to do with adaptability—whether people can modify the institutional arrangements as changes occur to resource conditions, the demographic and/or economic composition, or the political and cultural values within the watershed.

Such a multifaceted composite does not lend itself to a scale along which one could arrange the five cases from "best performing" to "worst performing." This type of assessment presumes a single evaluation criterion, which we do not have. Neither do watersheds, at least in the real world. Our conclusion that each case exhibits a mix of successes and shortcomings follows from our multiple evaluation criteria and from the particular selection of cases.

Why include multiple cases, if we cannot rate or rank them, and if each ends up as an amalgam of accomplishment and disappointment? Any reader might pose such a sensible question, and we offer two answers. First, each case has connected with points being made in the respective chapters—

Box 7.1 Case Studies Used in the Previous Chapters

Case	*Principal issue highlighted in the case study*	*Distinct organizational feature*
Santa Ana River watershed (Chapter 1)	Watershed complexity and dynamics	A joint-powers agency at the watershed scale
Platte River Basin (Chapter 3)	Politics of boundary definition, decision making, and accountability	An administrative agreement among states and the federal government
Columbia River Basin (Chapter 4)	Limits on human decision capabilities: bounded rationality and transaction costs	A congressionally created river basin council
San Gabriel River watershed (Chapter 5)	Specialization and coordination in a multi-organizational setting	Absence of any watershed-scale organization or agency
Delaware River Basin (Chapter 6)	Federalism and the challenges and possibilities of coordination among governments	A federal-interstate commission

about complexity and uncertainty (the Santa Ana River case in Chapter 1), about the politics of decision-making structures (the Platte River case in Chapter 3), about the challenges posed by bounded rationality and transaction costs (the Columbia River case in Chapter 4), about the prospects for differentiation by function and scale as an alternative to organizational integration (the San Gabriel River case in Chapter 5), and about the political capabilities and complications of federalism (the Delaware River case in Chapter 6). Second, each case presents both common and distinct lessons compared with the others.

LESSONS FROM THE CASES

No two cases among our five have the same organizational structures and institutional rules. Each therefore represents a distinct possibility for governing and managing a complex resource system. Thus, together they reinforce our overall position that the search for a best way of organizing watershed management is a misplaced undertaking.

Instead, common to all of the cases is a polycentric, indeed federal, style of governance. This polycentric, federal style features

- nested and overlapping jurisdictions (i.e., a mix of Type I and Type II governance structures);
- differentiation among organizations by function and by scale (i.e., multiple organizations participating in watershed governance and management that are not mere duplicates of one another);
- representation of diverse communities of interest through various public jurisdictions and private associations (sometimes implicitly but usually explicitly recognizing the politics of position and identity that are present within a watershed); and
- multiple nodes and pathways for data gathering, communication, deliberation, and participation in decision making (providing some redundancy as well as some coordination and means of accountability).

The fact that we can identify these common features of the polycentric, federal style of watershed governance is not at odds with our statement above that no two cases have the same organizational structures and institutional rules. Polycentric and federal systems can take a variety of forms in watersheds as in other political settings.

Another commonality among the cases is the dynamism of governing and managing complex adaptive systems. All of the cases are ongoing stories of the relationships between complex social and ecological systems, which have changed and are changing over time. In each case, human beings have managed to make some progress toward the "dual sustainability" Lee mentions in the quote at the beginning of the chapter, even though in each case, plenty of problems remain unsolved and challenges lie ahead. This point is worth some further discussion, with specific illustrations.

In each watershed, the natural resource management agenda has changed significantly over time, usually for a combination of reasons that include emerging problems, improved information, changed social values, and new opportunities. The loss of fish populations in the Santa Ana and Columbia Rivers, for example, and the threat to several species in the Big Bend region of the Platte River occurred during the twentieth century (and persist in the twenty-first), but the attention paid to those losses rose because of better information, increased public concerns, and legislative mandates. Groundwater contamination in the San Gabriel Valley, which had been developing for decades, came to the attention of the public and policy mak-

ers through improved information, and the efforts to remediate it (rather than simply abandon the groundwater basin as a source of supply) benefited from economic growth and technological advance. Plans for construction of flood control, water supply, and hydropower facilities on the Delaware and Platte Rivers were scaled back or canceled because of changing public attitudes, economic realities, and new opportunities to meet water demands through increased efficiency and conservation. River restoration efforts just getting under way in the San Gabriel River watershed reflect changes in public values for water resources, as a postindustrial population appreciates the recreational and aesthetic dimensions of river channels as much as their utility for disposing of municipal and industrial wastes.

None of this is meant to dismiss or minimize the ecological damage that has been done and continues in these watersheds; rather, the point is that in each watershed, both the ecological systems and the social systems changed, and the current state of affairs in each place emerges from the interactions of those social and ecological systems. In each case, institutional arrangements have been created and modified by people over time in response to changed awareness and understanding of problems, changes in the set of tools available for addressing them, and changing public attitudes and preferences. Some older institutions have been left in place, others modified, and others replaced. In each case, people have faced choices about whether to add new tasks to existing organizations or add new organizations; sometimes they have chosen the former and other times the latter. And in each case, the set of institutional arrangements in place at this moment is complex, with multiple public and private organizations working on different dimensions of watershed problems at different scales, with varying degrees of specialization, coordination, integration, success, and failure.

COMPLEX SYSTEMS, DECOMPOSITION, AND NONCENTRALIZATION

These observations relate to one of our broader themes. Although resources in a watershed are interrelated, watersheds are complex systems with somewhat decomposable features and problems, and people have often constructed institutional systems in ways that address or take into account that near-decomposability.[1] More precisely, people have used institutions to bound problems and recognize communities of interest within the watershed—establishing one set of rules for allocating flows on the main stem of

a river, for instance, and other sets of rules for allocating extractions from one or more groundwater resources in the same watershed, or creating separate jurisdictions for the upper and lower areas of a watershed and then tying those jurisdictions together through a compact, court decree, or other institutional mechanism. These are political choices, but that does not mean they should be lamented or overturned. Using the San Gabriel River case as an example, it is just as reasonable to argue that (1) the pumpers from each of the four major groundwater basins in the San Gabriel River watershed, for instance, really are relevant communities of interest with respect to the allocation of pumping rights; while (2) the lower watershed area as a whole and the upper watershed area as a whole are the relevant communities of interest with respect to dividing the flows and monitoring the water quality of the river main stem; and (3) the municipalities and private water suppliers overlying the contamination plumes in the Main San Gabriel Basin really are differently positioned with respect to the costs and benefits of contamination remediation than others located elsewhere in the watershed. That different organizational structures have been devised for addressing these different problems and communities of interest within the San Gabriel River watershed is not necessarily fragmentation, or even mere political expediency; it can be seen instead as a combination of rational problem-solving strategy (decomposing a system into components that can be addressed more manageably by boundedly rational people) with political realism (to paraphrase the observation by Lebel et al. [2005] concerning the politics of scale, position, and place within a river basin: although everyone is in the same watershed, everyone is not in the same boat).

Each of the river basins and watersheds covered in the case studies is organized in ways that recognize and demonstrate the significance of communities of interest and identity, including ones that do not conform to the watershed's physical boundaries. In the basins where some form of basin-wide governance system was adopted—the Platte, the Columbia, the Delaware—already organized communities of interest have played significant roles, both in working with basin-wide efforts and in undermining basin-wide efforts. Furthermore, in each of those basins, the initial effort (or at least desire) to manage resources on a basin-wide scale has gradually given way to recognition of the necessity or preferability of organizing at least some efforts on a smaller scale. In the Columbia River Basin, fish and wildlife recovery programs are being decomposed to the sub-basin scale; in

the Delaware River Basin, states eventually agreed to an institutional division of various reaches of the river so they could do their own planning for water-supply distribution; and in the Platte River Basin, each state took on the task of regulating the water-use behavior of its own residents in order to meet the states' obligations to one another and the objectives in the cooperative agreement. Thus, in all of the case studies, the tendency has been to create organizations at a variety of scales, sometimes moving toward and at other times moving away from a watershed-wide focus.

The principle of decomposition has been applied in these watersheds not only spatially but topically. Although fish and wildlife recovery is clearly linked to the operation of hydropower and flood-control facilities, or the control of groundwater withdrawals is linked to the flows of hydrologically connected rivers, or the remediation of contamination is linked to the availability of water supplies for municipal and industrial uses or for irrigation, and so on, people in the watersheds we included in this book have often chosen to create separate organizations and employ separate staff to focus on facility operation, groundwater use, fish and wildlife recovery, or the cleanup of underground pollution plumes. These choices have been affected to some degree by historical developments and/or jurisdictional jealousies (i.e., they are "path dependent"), but they also reflect a recognition of the limitations of human beings as information processors. As Chapters 1 and 4 particularly emphasized, the information requirements implicit in comprehensive integrated management of water or any other natural resources are enormous, and the information and decision-making capabilities of people are, well, not.

People are capable of a great deal of knowledge and creativity, but it is also well within the sensible judgment of boundedly rational people to decompose interrelated problems in a complex system and have different individuals or groups focus on them. Of course, when this option is chosen, mechanisms for communication, information sharing, and coordination must be devised, established, and maintained. There are risks of error proneness with either choice. When boundedly rational people attempt comprehensiveness and integration, they face risks of imperfectly understanding micro-level and subsystem patterns, selecting and paying attention to the wrong indicators of resource conditions, persisting in policies while system-scale indicators remain acceptable even though smaller-scale conditions are going awry, and so on. When boundedly rational people choose to

institutionally subdivide a complex system and address its decomposable units separately, they face risks such as overlooking externalities and, among individuals in separate organizations, failing to communicate effectively with one another and coordinate actions.

There are substantial challenges of coordination in multi-organizational structure, but this needs to be viewed realistically in terms of trade-offs. It is simply not possible to trade in all the coordination problems of a multi-organizational system for a better-functioning single organization. Integrated organizations have coordination problems of their own (see Department of Homeland Security) and lack some of the advantages of polycentric structures. In a world where information, communication, coordination, and decision making are all costly and imperfect, there are always trade-offs between the costs and benefits of organizational integration on the one hand and organizational differentiation on the other. It is therefore to be expected that the balance struck between them will differ from one watershed to another, as it has in the cases in this book.

OBSERVATIONS ON FRAGMENTATION

We mentioned above that polycentric systems need not be dismissed merely as fragmentation. The relationship between fragmentation on the one hand and noncentralized, polycentric, or federal systems on the other bears some further discussion. There are four important considerations as we reflect upon the concern with fragmentation.

First, fragmentation is clearly a real problem in institutional design. For instance, the fragmentation of water resource responsibilities across so many federal agencies (such as the Corps, the Bureau of Reclamation, Fish and Wildlife, National Marine Fisheries Service, EPA) has presented real obstacles to progress in some of the cases we have described. Organizations in a watershed can indeed work at cross-purposes, failing to coordinate their actions and putting "turf" interests ahead of other concerns. As we have noted, the proliferation of agencies and organizations within a watershed is not an intrinsically good thing.

The second consideration concerns whether the presence of multiple organizations working on various dimensions of natural resource issues within a watershed constitutes undesirable fragmentation or sensible differentiation. This is an empirical question, not one with an a priori answer.

In examining the institutional landscape of a watershed, observers should not merely take a census of public and private entities but look at what they do and how they relate to one another. Looking at what they do, it is worthwhile to consider whether institutions and organizations have been created to address different geographic scales, distinct problems, or issues; to finance and operate specific projects; or to try to assess whether and to what degree multiple organizations merely duplicate one another or have been established to take advantages of specialization or scale. Looking at how they relate to one another, it is important to search for the connections as well as the distinctions between organizations. A simple census of public and private organizations in a watershed will not reveal whether there are also coordinating institutional mechanisms such as contracts, compacts, memoranda of understanding, stipulated judgments, court decrees, joint-powers agreements, and the like. Any conclusion about whether a particular watershed enjoys the benefits of an "institutionally rich environment" or is beset by "fragmentation and duplication"—or more realistically, where it is situated on a spectrum between those poles—depends on a closer examination. The case studies in this book illustrate some of the institutional arrangements that can connect organizations and coordinate activities in a watershed even in the absence of a comprehensive watershed management authority.

Third, some manner of fragmentation will be present no matter how natural resource management and protection is organized. In large part this is an unavoidable consequence of the presence of multiple communities of interest and identity in a complex social system. In Chapter 4, for example, we noted that each state in the Columbia River Basin has its own laws and regulations governing water use, logging, and fishing. Suppose as an alternative (another thought experiment, if you will) that rules for water use, logging, and fishing were set on a watershed-by-watershed basis rather than state-by-state. Now shift your focus to a state in the Columbia Basin, say, Oregon. Some of Oregon is in the Columbia Basin and some is not. If rules for water use, logging, and fishing were established on a watershed basis, Oregonians owning property, doing business, or pursuing recreation in different parts of the state would be subject to differing rules. Real communities of interest and identity, including states, tribes, cities, and counties as well as interest groups, exist in every watershed and need to be taken into account. Identified as "Columbia Basin dwellers," the community is subject

to fragmented rules owing to the differences among states; identified as "Oregonians," the community would be subject to fragmented rules owing to the differences among watersheds. One can make a reasoned or even an impassioned argument that the latter type of fragmentation is preferable to the former, but one cannot argue effectively that one arrangement represents "fragmentation" and the other does not.[2]

Fourth and finally, in addition to the thought that watershed-by-watershed rule making would substitute one kind of fragmentation for another, there is the question of which watersheds "count." Staying with Oregon and the Columbia Basin, consider the watershed of the Willamette River. The Willamette flows into the Columbia—should the rules governing water use, logging, fishing, and so forth in the Willamette watershed be subsumed within the Columbia Basin, or is the Willamette "big" enough, "important" enough, "distinctive" enough to have its own governing body making rules for natural resource use and protection? Similar questions could be asked for tributaries of the Willamette, or for any other watershed nested within the Columbia, or for any other watershed within any other watershed anywhere in the United States. The answers to these questions are judgment calls. Neither science nor nature can answer them. As we noted in Chapter 1, we cannot just let nature do the choosing for us. The choice of boundaries for governing bodies for the management and protection of water, or any other natural resources, and the choice of organizational structures, decision rules, and so forth are political choices—unavoidably, inescapably, and essentially political choices.

The case studies in this book illustrate to a small extent the variety of political choices that are available in managing watersheds. As we have seen, even decision rules can vary, not only from place to place but from time to time and from one kind of decision to another. In some of the organizations in the Delaware and Columbia Basins, unanimity rules (consensus requirements) were modified over time to super-majority rules. In the Columbia, Platte, and Delaware Basins, the degree of agreement needed for major modifications to basin plans or cooperative agreements is different from the degree of agreement needed for day-to-day administrative decisions. In the San Gabriel River watershed, modifying the apportionment of river flows between the upper and lower areas is subject to a different decision rule than modifying the apportionment of pumping rights within any of the major groundwater basins, or modifying the funding and implementing of

groundwater cleanup projects in the Main San Gabriel Basin, or approving river restoration projects through the Lower Los Angeles and San Gabriel Rivers and Mountains Conservancy.

A (SORT OF) BOTTOM LINE

From the theoretical arguments we have presented in the preceding chapters and from the case studies, it appears to us that effective management of watersheds cannot be comprehensive and integrated into a single jurisdiction, but neither can it be the job of nongovernmental collaborative partnerships alone. The former option is foreclosed by the limits on human capabilities and the complexity of natural resource systems and social systems and fails to take advantage of some of the benefits that can be gained through organizational diversity (i.e., advantages of functional specialization and scale differentiation). The latter option confronts problems of collective action that are familiar in political economy. Governmental power is often needed to overcome free-rider tendencies, to raise funds, and to make and enforce authoritative policies. Consensus-based collaborative processes can also lead to gridlock, as we noted in Chapter 3, when interests benefited by the status quo use their implicit "veto" by withholding their agreement and blocking consensus.

Collaborative partnerships are pretty heavily dependent on who chooses to be involved, and involvement is a challenge to sustain over time. And even with respect to initial involvement, there are a number of potentially vexing questions. Can someone (an individual, an interest group, a business, a municipality, etc.) opt in voluntarily and make their values and interests count in watershed decision making whether or not others think they should be involved? Can someone opt out voluntarily, escaping costs or other burdens borne by those who remain? Can a collaborative, perhaps even nongovernmental, watershed council or partnership *make* someone participate? How are voluntary partners/collaborators held to commitments?

Between the ideal of the integrated authority and the ideal of the collaborative partnership, what remains? The polycentric structures of federal systems and politics. In the "federal watershed," a mix of Type I jurisdictions and nongovernmental organizations may represent communities of identity and interest, and a number of Type II jurisdictions may be created and employed to pursue specialization and scale advantages. A combination of smaller

(and more directly participatory) local arrangements with overlapping (and more likely representative rather than directly participatory) organizations at larger scales strives to balance the autonomy of local arrangements to do their own thing with the need to have some way of ensuring that actions by one local arrangement in one subsystem do not impose harm on other subsystems.

There is no single organizational model for this kind of combination. We are left instead with adding to, modifying, and subtracting from the organizational array in place at a given time as conditions (social and ecological) change, or as our understanding of them changes. But that is not a bad thing. Indeed, it makes sense that one must monitor complex adaptable institutional systems, just as one would closely monitor complex adaptive ecological systems, with an eye toward learning and an openness to changing course. As we observed in Chapter 6, federal systems depend heavily upon the presence of individuals who know what they are doing—not only with respect to the ecological sciences but the social sciences too. Fortunately, operating within a culture of federalism can also help cultivate those skills. People are capable of operating at multiple levels of action, playing different roles in diverse arenas, and coordinating their behavior with one another. In the federal watershed more specifically, this means finding and skillfully employing the kinds of mechanisms of inter-organizational coordination we have pointed to—memoranda of understanding; inter-organizational agreements, contracts, and compacts; stipulated judgments and court decrees; joint-powers agencies; decision rules that encourage consensus but allow matters to come to a vote if consensus is not reached.

TWO CHEERS FOR POLITICS

The preceding discussion is not intended to be a defense of the status quo in water resources management in the United States (or elsewhere). A great deal of both the past and the status quo is pretty indefensible. Important interests, values, and communities have been left out for too long, and some rules that made sense 150 years ago do not necessarily make sense today or looking toward the future (e.g., the first come, first served rigidity of the prior appropriation doctrine). The attraction of ideas such as grassroots environmental management and collaborative environmental management

has a lot to do with overcoming past exclusion and bringing new interests and values into policy making on a more nearly equal footing with established ones.

One way to think about the governance of watersheds is in terms of constitutions. Earlier we referred to institutional arrangements as constitutions establishing numerous "water governments" in the United States. Constitutions, understood in this broader sense, establish and contain rules concerning who participates in decision making and how, how communities of identity and interest will be represented, how authority over various decisions is allocated among a number of different entities—in short, who can do what, under which conditions, and with what limitations. Constitutions embody commitments that allow individuals and communities to make decisions and allocate resources with some assurance about "the rules of the game." But any constitution worth having will also be adaptable, accommodating the establishment of new rules and entities when they are really needed. Constitutions can freeze in place rules that once made sense but no longer do. Our repeated references in this book to complex, *adaptable* systems of institutions were intended to convey precisely this point.

Constitutional questions and decisions are not merely political, or sort of political. They are *essentially* political. The politics of watershed management—the politics of creating new organizations alongside old ones and figuring out their boundaries and interrelationships, the politics of establishing and modifying representation and decision rules (one person–one vote, one community–one vote, hierarchy–consensus/unanimity, supermajority–majority, veto points–deference to experts, etc.), the politics of distributing benefits and costs, and, above all, the politics of establishing policy directions in an unavoidably multi-organizational setting—is frustrating, time-consuming, costly, and unavoidable.

Politics in the watershed, then, is not just some residue of the past to be overcome. It is also how we change the present and anticipate the future. Politics and institutions are not just how individuals and communities protect their interests. Politics and institutions are also how we accomplish change. The politics of watersheds is to be embraced, if not with joy, then with a reflective understanding that this is how imperfect people living in a complex social and natural environment have to deal with one another and their world. It is how we get things done.

NOTES

1. We mean near-decomposability in the same sense as Herbert Simon (1996); namely, that complex systems are composed of parts that themselves can be considered distinctly even while recognizing that they are connected to the other system components. Decomposability should not be confused with decentralization.

2. The only way to eliminate this kind of "fragmentation" (i.e., different sets of governing rules confronting people who can be identified as within the same community of interest or identity) is to replace both jurisdiction-by-jurisdiction and watershed-by-watershed governance with a single set of federal rules governing water use, logging, fishing, and so forth, an option that strikes us as neither likely nor desirable.