

APPENDIX B: WATERSHED CASE STUDIES

WRIA 8 Adaptive Management Work Group DRAFT Watershed Case Studies: Key Findings

The Adaptive Management Work Group selected 15 watershed and regional environmental initiatives around the country to serve as case studies for developing implementation plans and organizing for adaptive management (for a list of case studies, see p. 5). Each effort had at least one important similarity to the WRIA 8 effort, such as a large urban population, congruous size or geography, a sophisticated planning effort, strong local government involvement in planning and implementation, or an ambitious plan for adaptive management. Work Group members also reviewed an extensive literature of comparative assessments of watershed programs and governance, most of which included some analysis of key qualities that made efforts successful or unsuccessful. Because there are hundreds of watershed efforts around the country, this type of analysis is by nature more anecdotal than comprehensive. Nevertheless, several important observations can be made. The findings are loosely grouped according to the four adaptive management framework chapters of the public review draft (organizational structure, measures and monitoring, funding strategies, and commitments-see chapters 2, 7 and 8).

Organizational structure: Every watershed effort has some level of organization among stakeholders to coordinate the implementation of watershed plans. There are as many organizational structures around the country as there are watersheds, and the case studies and literature suggest that the most effective arrangements vary according to the issue being addressed, the nature and number of stakeholders, and the physical characteristics of the watershed. A few useful generalizations can be drawn from the surveyed efforts:

- A. Management through a series of committees: Regardless of how formally or informally watershed efforts are bound and organized, most accomplish their decision-making through a series of committees. These arrangement can be as simple as a single “watershed council” committee of stakeholders, or as complicated as a regional agency with multiple tiers of committees and subcommittees (e.g. the CalFed Bay-Delta Initiative looks like a small state agency). WRIA 8’s planning structure of the Forum, Steering Committee, Technical Committee, and several work groups is comparable to the implementation structure of many of the organizations surveyed. (Most watershed efforts maintained a similar committee structure as they transitioned from planning to implementation.) Because these committees are often made up of volunteer representatives from stakeholder groups, they usually require some level of staff support to keep players working together, track implementation, and report on progress.
- B. Support staffing for watershed coordination: Almost all successful watersheds have some level of watershed-wide staffing to support collaborative efforts. In most efforts, staff serve as a “support structure” to provide coordination and keep the diverse elements of implementation (stakeholders, meetings, projects, monitoring results) moving smoothly. Staff support ranges from a single part-time coordinator working for one of the stakeholders (such as the Lead Entity coordinators in many of Washington’s smaller watersheds) to an independent agency or non-profit. Most of the comparative studies on watershed management identify staff support as an important ingredient for successful organization. The level of staffing of each watershed organization typically reflects a balance between the services desired by the stakeholders and the availability of funding to support the recovery effort. There are several levels of watershed-wide staffing:

1. At the simplest level, a council of stakeholders employ a single watershed coordinator. This is common among watersheds that are smaller, have fewer stakeholders, or whose stakeholders are pursuing implementation of their plan independently. (At least half of Oregon's watershed councils have a single coordinator.)
2. Many regional efforts and individual watersheds dealing with complex conservation issues employ a handful of staff to fulfill critical coordination, technical, or outreach responsibilities. A typical organization of this type employs between three to five people, who are housed by one of the stakeholders (such as WRIA 8's ILA staff) or at an independent non-profit. Examples: Lower Columbia Estuary Restoration Partnership, Applegate River Watershed Council, Clark Fork–Pend Oreille Water Quality Action Council. Among the case studies, the most common roles filled by watershed staff include:
 - i. manager or coordinator (coordinating efforts of partners, funding, etc.)
 - ii. outreach (outreach and education to public, reporting on progress to stakeholders and external funders)
 - iii. scientists (monitoring, technical assistance, studies)
 - iv. project managers, planners (project prioritization, tracking plan progress, coordinating specific key projects or sub-basin plans)
 - v. general administrative assistance (bookkeeping, scheduling, etc.)
3. Larger regional initiatives sometimes establish a branch of an agency or an independent agency to provide staff support, e.g., EPA's Chesapeake Bay and Great Lakes Offices, CalFed, Tahoe Regional Planning Authority.

Many watersheds the size of WRIA 8 have only a coordinator and possibly one administrative staff person. However, WRIA 8 has a larger population, more stakeholders, and better scientific capacity than most watersheds its size. In the watersheds with a plan as technically complex and ambitious as WRIA 8's (which tend to be larger watersheds or estuaries in the National Estuary Program), staff support often includes some scientific capacity for coordinating monitoring efforts, tracking implementation, and sharing data; also capacity for conducting outreach to the public and providing administrative support for fundraising.

Commitments: When watersheds develop implementation plans, stakeholders have several options about how to commit to the actions outlined in the plans (see the issue paper on Commitments). Most of the watershed case studies and examples from the literature fall into one of three levels of commitment among watershed partners:

- A. No commitments, individual implementation: At the lowest level of commitment, individual jurisdictions resolve to follow through with implementation of the plan individually, using the plan only as guidance, with periodic meetings or check-ins with other stakeholders. None of the watershed efforts of a scope or scale similar to WRIA 8's follow this model. (Although it appears to be effective in smaller watersheds where there are few active stakeholders and a strong level of trust, such as the Dungeness River).
- B. Partners jointly endorse plan goals, strong collaboration: A much more common arrangement is for project partners to endorse the goals of the plan, sign an MOA, and in many cases, acknowledge responsibility for specific activities in a way that is not legally binding. Partners will often commit to contributing funding to a shared resource (e.g., creating monitoring consortia like the Regional Monitoring Program for the San Francisco Estuary and the Triangle Area Water Supply Monitoring Project, or staffing watershed coordination such as through the Rouge River's ILA or

WRIA 8's ILA). For practical reasons, these funding arrangements are often made outside the implementation plan.

- C. Partners make binding commitments to implement plan actions: Very few watershed implementation plans have legally binding commitments between stakeholders to fund specific elements of implementation or specific recovery actions. Exceptions include some large regional efforts with significant federal and state agency involvement such as the Everglades and CalFed program, and the rare individual watershed such as in the Yakima Basin. Programs with a strong federal contribution through direct appropriations usually require documented match from local or state governments (e.g., all plans where the Army Corps of Engineers has significant implementation responsibilities, from the Everglades and CalFed to the Lake Washington General Investigation).

Several reports in the literature on watershed government (Imperial and Hennessey; Kenney et al) have made the important observation that watershed efforts without a binding process or legal commitments can nevertheless generate a strong sense of group momentum and "peer pressure" from regular meetings, development of joint work plans, and frequent reporting on shared efforts and accomplishments.

Funding plan implementation: Most watershed planning processes have received significant financial support from state and/or federal agencies (e.g. Washington's 2514 watersheds, all National Estuary Programs), usually for a period of several years. However, most watersheds transitioning from planning to implementation have had to come to terms with the fact that sustainable funding for implementation and coordination will require a substantial and creative component of local funding, and that it will be difficult to rely on state and federal funding for long term implementation. In this respect, WRIA 8 has a head start on many similar watershed efforts. (WRIA 8 has had a greater degree of local funding than most, probably because most of the important salmon resources fall within the jurisdiction of a well-organized group of local governments.) Several options for local funding and financing that the surveyed watersheds have utilized include (see the issue paper on Funding for more detail):

- A. Local financing through bonds: This has been a popular means of raising state match to federal programs, e.g., in California and Florida. (Politically, this is an unlikely prospect in Washington, but there may be stronger options at the county level.)
- B. Non-profit status: Many watershed councils have incorporated as non-profits to access donations from individuals, corporations, and foundations. Most of Oregon's watershed councils are non-profits, as are many of California's. A few examples include the Tri-State Water Quality Council, the Applegate Partnership, and the Coquille Watershed Association. As a twist on this strategy, the Lower Columbia River Estuary Partnership established an unstaffed non-profit foundation to serve as a bank account for charitable donations from foundations and individuals.
- C. Establishing a special purpose district: Special purpose districts are state authorized areas that can generate funding for restoration activities from a tax assessed on local property value. For example, Tampa Bay receives funds from the South Florida Water Management District, and restoration projects in the Green River are funded in part by the Green River Flood Control Zone District.
- D. Assessments to local governments: Local governments sign an ILA to fund activities such as monitoring or watershed coordination, e.g., Rouge River, Tampa Bay, Anacostia's metropolitan council of governments, the Hood Canal Coordinating Council.
- E. Directed mitigation funding: North Carolina has an well-organized system of directing mitigation funds from roads projects and smaller Army Corps of Engineers permits to riparian and wetland restoration in areas identified as high priorities in watershed

plans. Several smaller watersheds in California and Texas have established local mitigation funds from fines and permits, although the dollar amounts are relatively small.

Adaptive management and measures of success: Few efforts the size of WRIA 8 have written a detailed and thorough adaptive management component into their implementation plan, but many have established some means for evaluating, updating, and revising the plan (Chehalis, Yakima, Mackenzie, Columbia, etc.). Several characteristics of the surveyed efforts are worth mentioning:

- A. **Timeline:** Most plans with a schedule for evaluation are on a timeline to be assessed or evaluated every year or 5 years. A common cycle is to track progress, compile technical data, and report on implementation on a yearly basis, and perform a full plan evaluation or update every 5 years. A good example of how the evaluation process led to adaptive management is the Tahoe Regional Planning Authority (TRPA). TRPA's second 5-year plan evaluation for the basin showed that key measures of success were not improving, and this triggered a broad-based effort to revamp the plan and generate a \$900 million federal, state, and local funding package. Evaluation cycles rarely seem to be tied to other local planning processes such as the Growth Management Act or Shoreline Management Act, although in theory these could provide a powerful driver for the plan evaluation process.
- B. **Measures of success:** Most efforts with a process for evaluating and updating their plans (and therefore "adaptive" in some sense) have goals to measure their progress against. These goals range widely, depending on the primary issues being addressed (water quality, salmon recovery, wetland function, economic development), scientific capacity of the watershed partners, and the level of motivation and involvement of the stakeholders. Goals can range from broad visions of future conditions to specific numerical targets or thresholds. A few examples:
 - a. The Mackenzie Watershed Council has a set of five general goals and desired future conditions, and measures progress against them every five years;
 - b. The Anacostia Watershed Restoration Committee has a report-card style scoring system every few years for 50 different watershed parameters;
 - c. CalFed's Watershed Program Monitoring and Performance Measurements establish measures of success but not numerical targets;
 - d. Tampa Bay has specific numerical targets for nutrient reduction and habitat restoration.
- C. **Monitoring plans:** Almost all implementation plans have a monitoring component. Few plans go so far as to categorize activities by implementation, effectiveness, and validation monitoring. Monitoring is one area of implementation where groups often rely on partner staff to carry out collective responsibilities, because it can be difficult to get external funds to support independent monitoring activities. One alternative that several watersheds have pursued is to pool resources and form a monitoring consortium (e.g. Tampa Bay, San Francisco Estuary). Many watersheds unable or unwilling to hire full time staff will hire consultants (e.g., Oregon's North Coast Watershed Association), and many smaller watersheds also rely on volunteer monitoring programs to help achieve their objectives. Many of the watershed efforts establish monitoring committees to oversee and coordinate monitoring activities among stakeholders, similar in composition to WRIA 8's technical committee (e.g., the Coquille Watershed Association).

Why watershed efforts fail: The literature comparing watershed organizations observes that efforts which fail to meet their goals generally fail for one of three reasons:

- A. They splinter over a contentious issue that stakeholders cannot reach consensus on.

- B. They aim too low, leaving action and implementation as entirely discretionary, and do not generate enough momentum among stakeholders.
- C. They aim too high, tackle problems beyond their capacities, and fail to achieve the ambitious goals that are set. Alternatively, they may make progress toward the goals but fail to characterize the progress as positive enough to satisfy stakeholders or external funders.

Watershed Case Studies

Tampa Bay Estuary Program	Mackenzie Watershed Council
Lower Columbia Estuary Restoration	Chesapeake Bay Program
Chehalis Basin Partnership	Lower Columbia River Estuary Partnership
Yakima River Basin Watershed Planning	EPA Great Lakes National Program Office
Dungeness River Management Team	Tahoe Regional Planning Agency
Coquille Watershed Association	CALFED Bay-Delta Program
Flathead Basin Commission	Anacostia Watershed Restoration Committee
Applegate River Watershed Council	Conesauga Watershed Alliance
Clark Fork – Pend Oreille Tri-State Water Quality Action Council	

Selected Bibliography of Comparative Studies of Watershed Management

Born, S.M. and K.D. Genskow. 1999. Exploring the Watershed Approach: Critical Dimensions of State-Local Partnerships. The Four Corners Watershed Innovators Initiative Final Report. River Network, Portland OR.

Brush, M., et al. 2000. Recent Trends in Ecosystem Management. University of Michigan.

California Water Resources Agency State Water Resources Control Board. 2002. Addressing The Need to Protect California's Watersheds: Working with Local Partnerships, Report to the Legislature.

Environmental Protection Agency. 2000. Case Studies: Organizational Structures Relevant to Implementation of Comprehensive Conservation and Management Plans.

Environmental Protection Agency. 1996. Top Ten Watershed Lessons Learned.

Huntington, C.W. and S. Sommarstrom. 2000. An Evaluation of Selected Watershed Councils in the Pacific Northwest and Northern California. (3 parts). Prepared for Trout Unlimited and Pacific Rivers Council. Eugene, OR.

Imperial, M. and T. Hennessey, T. 2000. Environmental Governance in Watersheds: The Role of Collaboration. Presented at the 8th Biennial Conference of the International Association for the Study of Common Property (IASCP). Bloomington, IN.

Kenney, D.S., McAllister, S.T., Caille, W.H., and J.S. Peckham. 2000. The New Watershed Source Book: A Directory and Review of Watershed Initiatives in the Western United States. Natural Resources Law Center, Univ. of Colorado School of Law, Boulder, CO.

Leach, W., Pelkey, N.W., and P. Sabatier. 2001. Keys to Success in Watershed Management Partnerships: Approach and Initial Results. In: Proceedings of the 8th Biennial Watershed Management Council Conference. U.C. Center for Water Resources. Riverside, CA.

Washington Department of Ecology. 2003. Assessment of Watershed Planning: A Report to the Legislature.

Wondolleck, J. and S. Yaffee. 2000. Making Collaboration Work: Lessons from Innovation in Natural Resource Management. Island Press, Covelo, CA.