

CHALLENGES IN WATERSHED ACTIVISM: CITIZEN ACTION, SCIENCE, POLITICS AND CONTROVERSY

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Ecologists depends on switching from a fragmented to a landscape view perpetually talk about the interdependence of nature and lip service is given to this notion on Earth Day, but, in practice, environmental problems are approached one fragment at a time, not as a complex, multivariate, interdependent landscape. The coexistence of technology, and biodiversity.

John Cairns, Jr. (1991)

Watershed is the environmental buzz word of the nineties. Debates on what watershed approaches mean, politically and geographically, echo through the halls of Congress, offices of national conservation organizations, and on the pages of the nation's leading journals. A fine debate and worthy issues for the 1880's and the closing of the Western Frontier (Udall, 1988).

Improved upon, refocused, energized, and revised, the time for watersheds -- comprehensive, integrated environmental and political approaches to our riverine ecosystems -- has arrived again one hundred plus years later. The watershed approach to our river systems and our entire natural environment does indeed lead the environmental debates of the 1990's as well. One organization even claims to have invented this "new" approach to the natural environment.

What is a watershed and what is the debate all about? Fancy outhouses, water closets, you say? No, but those answers are among the most common given in informal surveys of the general public taken by this writer over the years. **Simply put, a watershed is the land from which water drains into a particular stream, pond, or other water body. All land is part of one watershed or another.**

ECOLOGICAL LITERACY

It is terribly important for everyone, young, old, or in between, to know their ecological address. What exactly is an ecological address? For our purposes, an ecological address may be defined as one's place in the watershed. Knowing your

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ecological address means knowing your relationship with the waterways around you (where does your water come from? what affects its quality and quantity? where does it go when you are done using it?), what subwatershed you live in and to what major watershed you belong. We've heard a lot of talk about "cultural literacy" over the last decade from the likes of Allan Bloom and other pundits. We rarely hear about, at least in broad public debate, ideas and paradigms essential to physical survival in the coming century. Ecological literacy, the knowledge of our ecological address and

relationships, raises far more important issues than does cultural literacy (as defined by Bloom) for our ability to thrive in comfort over the next millennium (see Orr, *Ecological Literacy* 1992). The knowledge necessary to know that effectively protecting a river means effectively addressing population growth, urban sprawl, air quality, solid waste, and a myriad of other issues throughout the watershed has to become a part of our culture, a part of our ecological literacy.

Ecological literacy is fundamental to our work as citizen activists, environmental engineers, resource scientists, and regulatory administrators. Do you know your ecological address? Do you know exactly where you live? Do you know to what watershed you belong? Knowledge of your ecological address shows an understanding of your place in the ecosystem. Knowledge of your place in the ecosystem clearly indicates an understanding of the interconnectedness of the human and natural environment.

Consider, for instance, the current public debate over supposed "takings" of private property resulting from common, limited, and generally timid environmental

protection measures. A basic level of ecological literacy throughout society would likely render the debate moot. Ecological literacy knows the inanity, the preposterousness, of the thought that individual property owners (you, me and our neighbors) should have to be paid to protect resources (land, air, and water) that in common are required to sustain life on the planet.

WHY RIVERS? WHY WATERSHEDS?

"Everybody has to go down the river sometime. What river, well some river, some kind of river. Huck Finn said that and if he didn't say it he should have said it. If he didn't, I will."

Edward Abbey, One Life At A Time, Please.

Rivers comprise the ecological infrastructure of the continent, the roads and pipes of our natural systems, the veins and arteries of the watershed body. Rivers' life transporting functions determine the health and ultimate survival of the patient. Rivers provide natural valley flood storage, wetland and wildlife habitat, and a tremendous diversity of aquatic and land species. Rivers supply tremendous natural vistas, impressive displays of nature's power, and conversely, contemplative opportunities central to our lives as thinking humans -- attributes needing far more protection than they currently receive.

Rivers also perform a larger function in the natural realm. They connect the mountains to the sea, link headwater areas to lowlands, and provide a continent-wide system of pathways for the movement and genetic mixing of plant and animal species. This mixing, to the extent it can occur on extensively developed rivers, biologically strengthens all of the areas that rivers affect by connecting our most significant natural areas -- mountains and coasts, forests and refuges -- one to the other.

In many ways river systems serve as the primary natural economic infrastructure: sources for waste disposal, power supply, transportation corridors, drinking water, and recreational use. Unfortunately, the history of human development in North America, and throughout the world since 1600, shows an ever-increasing destructive capacity affecting natural riverine systems. The veins and arteries are denuded of their supportive organs while simultaneously overloading with sediment and other waste products.

Yet rivers are part of complex watershed systems valuable in themselves; they are the beginning of the natural food chains and, as moving, dynamic systems, are essential to the survival of other ecosystems (see generally *Restoration of Aquatic Ecosystems* Cairns et al. 1992; *Entering The Watershed* Doppelt et al. 1993).

NORTH AMERICA'S RIVERS

The United States has nearly 5.2 million kilometers (nearly 3.25 million miles) of rivers, comprising more than 100,000 streams. (Benke, 1990) In many ways rivers represent the most visible successes of the past two decades of major environmental protection legislation. Most U.S. rivers are no longer visibly polluted with the sludge, changing colors from industrial discharges, and algal blooms that led the Merrimack and Nashua Rivers in New England to be characterized by the late 1960's as "too thin to plow and too thick to drink."

Gross water quality has improved, fish and other aquatic species have been restored in many formerly "dead" sections of rivers and the Cuyahoga no longer catches fire. Indeed, after two decades of sewage treatment and over half a billion dollars in federal and state expenditures, the Merrimack River now supplies drinking water to over 300,000 people in its watershed and the river is seeing a resurgence of its once tremendous anadromous fishery with the return of American Shad and a tenuous return of Atlantic Salmon.

Yet healthy river systems are a finite and vanishing resource. The vast majority have been drained, dammed, ditched, over-developed, and/or choked with pollution. Many, if not most of our rivers, are in danger of losing their most basic natural features, capacities and ecological balance.

CHALLENGES IN WATERSHED APPROACHES

Step back and look at this place called the United States. Step back so you can see the great Rocky Mountains directing their ever descending waters either west toward the Pacific or east toward the Atlantic. Look carefully and you will see the myriad patterns of ridges and valleys etched with riverine paths pulsating to the rhythms of life; the cascading, trickling, gurgling, babbling, gushing, roaring, seeping, lapping, crashing, and silent rhythms of life.

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A major challenge for the river watershed conservation movement includes gaining a greater public understanding of the role that natural rivers and streams play in

enhancing the daily life of each and every citizen. In particular we need to communicate river watershed protection in ways with which people can relate.

People relate to what they can taste, touch and feel. Waste products and recycling are popular and easy to understand because we have to deal with them each and every day as part of living. The importance of river molluscs (clams and snails), macroinvertebrates (bugs), and their relationship to a healthy and natural environment is a more difficult concept for the general public to grasp.

ECOLOGICAL SHOCK

Current trends reveal a crisis in biodiversity and an inability of current environmental protection laws and efforts to protect endangered species on a piecemeal or systematic basis. Recent studies by the Nature Conservancy, The American Fisheries Society, and the National Research Council of the National Academy of Sciences (Cairns, et.al. 1992) show flowing freshwater systems (read rivers!) sustaining far more damage than terrestrial systems. The Nature Conservancy study (Master 1990) concluded that one-third of all native freshwater fish species in the U.S. are threatened or endangered, two-thirds of all freshwater mussels, and nearly three-quarters of freshwater crayfish.

The American Fisheries Society study (Nehlsen et.al. 1991) found an equally disturbing set of facts for anadromous fish, concluding that 214 salmon and steelhead fish stocks in the Northwest are now threatened; 101 of these are near extinction. We also know that eastern anadromous fish species -- the Atlantic Salmon and shad -- are gone from most of their original spawning grounds due to dams, riverside development, and pollution.

All three studies cite the loss of riverine habitat and biological stream function due to dams, water diversions, channelization, deforestation and streamside activities as the major cause of species decline. The Nature Conservancy study concludes that riverine development and habitat loss plays a key role in **93 percent** of the instances of aquatic species decline. Because many ecologists believe that rivers are true indicators of general ecological health, these precipitous declines take on an even greater significance. Indeed, while at least ten native U.S. fish species became extinct between 1979 and 1989, no terrestrial species are known to have become extinct in that same period.

Additions to the "Ecosystem Collapse" file accumulate regularly. Recent pieces include Congressional testimony by Dr. James R. Karr, Director of the Institute for Environmental Studies at the University of Washington. Dr. Karr's testimony to Congress, accompanied by a grim list of statistics, states "Simply put, the ecology of North American Rivers has been decimated by the actions of human (cont...) society... But river degradation goes beyond the loss of species. Sport and commercial fisheries

of the U.S. have also been decimated by human actions during this century. Commercial fishery harvest in rivers such as the Columbia, Missouri, and Illinois, have declined by over 80 percent during this century."

Emily Yoffe's stark cover story for the New York Times magazine "The Silence of the

Frogs" provides yet another illustration of the ecological shock affecting North American freshwater systems and amphibian populations collapsing throughout the world. Studies collected by the Declining Amphibian Populations Task Force headquartered in Corvallis, Oregon show almost one-third of North America's 86 species of frogs and toads appear endangered and or extinct.

David Wake, director of the Museum of Vertebrate Zoology at the University of California at Berkeley says, "My theory is that it's general environmental degradation. That's the worst thing... Frogs are in essence a messenger. This is about biodiversity and disintegration, the destruction of our total environment." (Yoffe, p 64). Follow up reports in March, 1994, suggesting the decline in amphibian populations results from the continued deterioration of the ozone layer in Earth's atmosphere, support Wake's conclusion.

Entering The Watershed, a paradigm shifting book by the Pacific Rivers Council, contains the most comprehensive collection to date of the ecological crises (and policy recommendations) facing North American rivers. Documented impacts include the estimated disappearance of 70-90 percent of natural riparian vegetation due to human activities, and the fact that seventy percent of United States rivers and streams have been impaired by dams and other flow alteration.

Taken together, or even individually, these studies provide initial evidence and warning that the entirety of many of our natural systems may be overloaded and in some form of ecological shock.

TODAY'S CHALLENGE

Mere improvement in sewage treatment and reduction in waste disposal inputs alone will not save our river systems. Across this country the creeping suburbia exemplified by the tremendous coastal and river bank development boom of the 1980's threatens to undo the progress represented by water quality improvements since the passage of the sewage treatment mandates in the federal Clean Water Act. The explosion in destructive shoreline development, ironically made attractive by the improvements in water quality, threatens to permanently cripple the natural habitat and other resources that make our rivers so important to a sustainable natural environment.

NEW APPROACHES

Citizen-based non-governmental river protection organizations in New England and in scattered other areas throughout the country have led a quiet revolution in environmental management for the last four decades. A significant minority of these groups advocated and began to implement educational programs addressing the fundamental interconnections between water quality, water supply, wetlands, air quality, and wildlife habitat. Local and regional river watershed associations including the Merrimack River Watershed Council, the Housatonic Valley Association, the Cahaba River Society, and many others have been ahead of the curve in the national environmental movement with their efforts to restore and protect the environment on an ecosystem basis, using river watersheds as the basic unit.

What does this mean on a practical basis? It means redirecting agency work, in addition to redirecting the work of private nonprofit river corridor protection and advocacy groups -- to step back and take a look at the watershed, take a look at the global issues in the watershed and then figure out how we are going to apply our daily battles to those issues in a pro-active way.

TRADITIONAL APPROACHES TO RIVER PROTECTION

The wilderness movement and the river conservation movement often converged in the 1960's and early 70's with a focus on preventing dams, in the few stretches of rivers not already dammed (damned!). Occasionally, we focused on trying to protect the land along the banks of the rivers. Traditional technical fixes to the degradation and devastation of our water quality and water supply including sewage treatment plants, discharge permits, wetlands mitigation and replication, usually accompanied these efforts.

Many of those traditional "fixes" merely conditioned or mitigated continuing problems. Mitigation, however, doesn't address fundamental issues. Mitigation only slows the harmful effects addressed by discharge permits, dredge and fill permits, development and habitat destruction while population and development pressures continually increase.

Traditional approaches also spend enormous time and effort with state and federal agencies which live and breath these technical fixes. In fact, if one takes a cynical view of environmental law protection, most of these agencies were set up to implement discharge permits and enforce the degradation of our water, air and land.

Professionals in the agencies, the national environmental groups, and the local river groups (this writer is no exception) become caught in this pattern over and over. We spend so much time fighting the battle of the day, and the mitigation project, and trying to condition a development or put a technical fix on the end of the sewer pipe, we miss the larger issues so clearly illustrated in the scientific studies and in our rare walks along the rivers.

Watershed approaches mean educating adult decision makers to regional issues and figuring out useful and innovative methods to adapt governmental boundaries to drainage basins and multiple jurisdictions. An effective watershed approach involves

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solving broader issues. Most importantly, an effective watershed approach means focusing public attention to solutions for the single most critical environmental issue throughout the United States and the world, the rising population growth rate in the United States caused by the baby boom of the 1990's.

One of the keys to effective watershed approaches involves creating political support for redirecting agency efforts. We are seeing the beginning of this kind of change within the Clinton Administration, and conversely the loss of political support for these kinds of changes in Congress and the Western states.

1990'S -- DECADE OF WATERSHED CONSERVATION

The 1990's could be the decade of river conservation. A coordinated river and watershed conservation movement could strengthen the Clean Water Act, institute comprehensive recovery plans for endangered fish species, negotiate far-reaching mitigation for dams that are being relicensed, and forge and pass comprehensive new tools for river protection including the National River and Watershed Protection Act and the Urban River Restoration bills.

To take advantage of these opportunities it will be necessary to mobilize a grass-roots movement that can counteract the influence of the "backlash" that is becoming more and more organized. This backlash, real people who are showing up at public hearings in droves to attack river conservation proposals, seems sincerely to believe that river conservation is just a front for the federal government to steal their land. At least that is what the organizers, supported by extractive private industries, have told them.

The framework for a grass-roots movement exists in the 2,500+ river guardian groups across the country. It doesn't seem, however, that the traditional national environmental organizations will focus on this grass-roots constituency, perhaps with the exception of volunteer monitoring programs in the Izaak Walton League, the Global Rivers Environmental Education Network, and River Watch Network. Quite understandably, the national organizations want to focus their energies on the more direct roles of lobbying, litigation, intervention with agencies and gaining media attention for river issues.

BUILDING A WATERSHED MOVEMENT

The challenge is to work at the regional, state and grass-roots levels to foster a cohesive movement of river and watershed conservation. This means recruiting and empowering leaders. It means building organizations capable of carrying out campaigns. It means linking up all these leaders and organizations so that they can work together for the common goal, to stem the tide of river deterioration and forge new tools for watershed conservation. It also means building the personal relationships where we live, with our neighbors and businesses, river conservation colleagues, and key decision makers at all levels of society.

In two aspects this is easy. We are a nation dependent on rivers for our drinking water. More than 85 percent of all Americans take some part of their everyday water from rivers. Watershed approaches also provide unique opportunities for improved environmental justice in America. Rivers are so intricately woven into the fabric of urban and rural society they directly touch the wealthy and poor alike. The poor in America are most at risk when a river becomes degraded. They rely on rivers for drinking water to a larger extent and are most exposed to pollution and contamination. Watershed planning, with an emphasis on connecting urban grassroots organizations and poorer rural communities with information about river health, 'daylighting' streams, riparian habitat, and water resource allocation, can become a major tool for improving human health and increasing equity in America's environmental policy.

One small start has been made with the effort of River Network, the Pacific Rivers Council, American Rivers, the American Whitewater Affiliation, and a number of other state and regional organizations including the Cahaba River Society, the Merrimack River Watershed Council, New York Rivers United and others who have informally banded together to support the River and Watershed Protection Act and the various Urban River Restoration bills now before Congress.

Long term success for river and watershed protection and restoration will hinge on the ability of this tentative alliance to work more closely together and to mobilize existing river guardian organizations, reach out to new constituencies in the inner cities, business, the federal government, environmental organizations and the states in a new National Watershed Campaign over the next eight years.

Campaign goals could include a coordinated Strategic National Watershed Restoration Initiative, major changes to the Clean Water Act, reorganization of the EPA and other federal agencies, uniform and consistent standards for all federal land agencies, ecosystem and watershed level planning by all federal agencies, a comprehensive ecosystem-based watershed restoration program, a moratorium on new dam construction, periodic "State of the Nation's Rivers" reports and stable long-term funding and sufficient financial and tax incentives for riverine restoration ("Entering The Watershed" pp 47-82).

Some of these efforts are underway. Federal agencies including the EPA, U.S. Forest Service, U.S. Fish and Wildlife Service, and Bureau of Land Management have all adopted new programs for ecosystem and watershed restoration and management. The immediate challenge for River Network and the river conservation movement is to coordinate, connect and expand the grassroots constituency as fast as river science and public policy have developed.

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Mr. Lavigne became director of River Network's River Leadership Program in May 1992. He has worked for and with a wide variety of environmental advocacy and management groups including, among others, American Rivers (D.C.), the New England Coastal Campaign, the Merrimack River Watershed Council, and the Massachusetts League of Environmental Voters and he has served on numerous local, state and federal advisory boards and projects. He is a coauthor of a book on land use and aesthetic preservation in Vermont and is the author or coauthor of dozens of articles and presentations on environmental and other issues. He is also an avid sea kayaker and out-of-shape mountain climber.

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