VERMONT JOURNAL OF ENVIRONMENTAL LAW
Volume Three 2001-2002

Restorations, Quagmires, Watersheds and Consensus: Where do we go from here?

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SKI GOGGLES AND THE WAYS WE THINK

As I start, you should be aware of the fact that I am an environmental lawyer and that I spent the last 20 years working in river protection with various nonprofit, environmental advocacy organizations. I also spent one year as Deputy Director of For the Sake of Salmon, a regional, consensus-based organization, where I worked on salmon extinction issues in the Pacific Northwest. You might have what I call an "already always way of listening" about all that.[1] Do you know what it is like when you first put on a pair of yellow ski goggles and everything looks yellow? When you first put them on, everything looks yellow, and then after you've had them on for an hour or so, it all looks normal. But you are still looking through the yellow glass and receiving everything with that tinge of yellow. This is your filter or "already always way of listening." I am going to ask that you be aware of your own filters, i.e., your "already always ways of listening," while reading what follows. First, here is a story to demonstrate the principle.

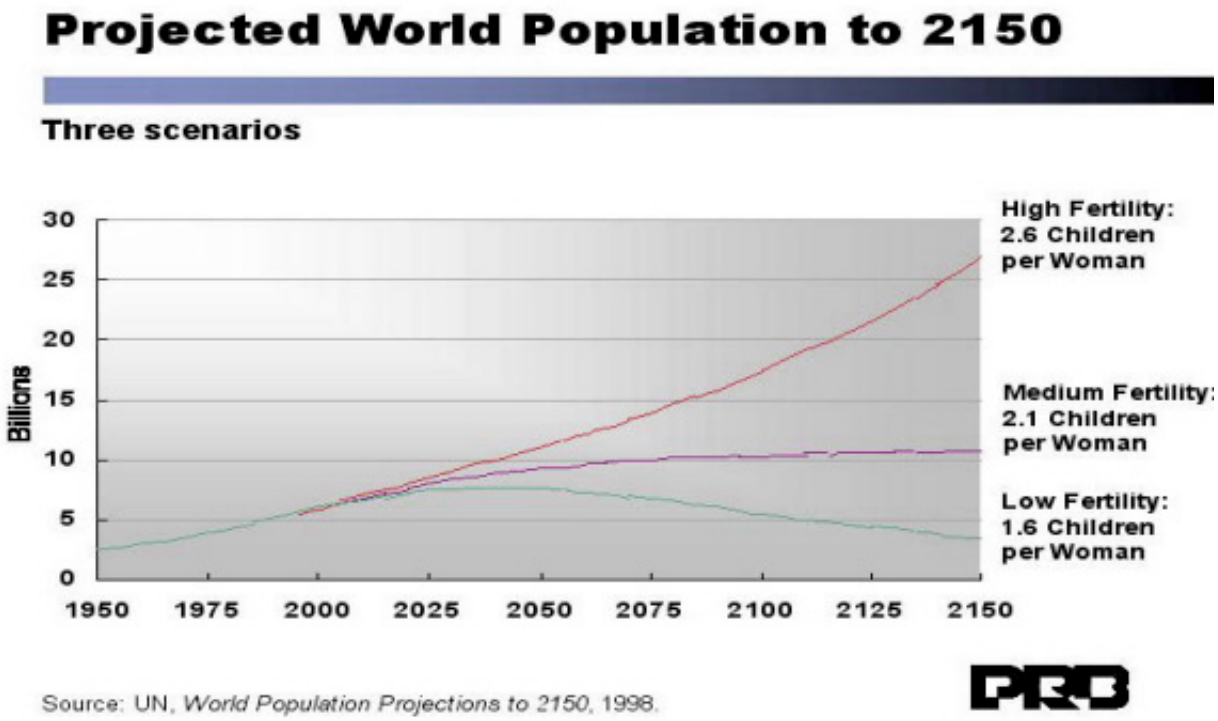
Four mice lived in the four corners of a barn, eating together everyday. The mice were territorial, and they would rarely visit each other's corners. One day while eating, they talked about a cow that lived in the center of the barn. The north mouse and the south mouse both agreed that the animal had two legs, a head and a tail. However, the north mouse thought it was white with black spots and the south mouse thought it was black with white spots. The east mouse thought it had a head and no tail, while the west mouse thought that it had a tail and no head. One day, a cat surprised the mice while they were eating and chased them to the south mouse's home. Once safe, they looked out and found that indeed the cow appeared to have two legs, a head, and a tail and be white with black spots. Upon this discovery, they decided to visit all of their homes and realized that they each had a different viewpoint and in reality, the cow had four legs, a head, and a tail.

RESTORATION

The tale of the cow is a good way to think about the way watershed restoration and watershed protection efforts in the Western United States have been approached. The United States has a long history of environmental law, dating back to the late 1800s, with The Rivers and Harbors Act of 1899[2] and environmental health statutes, addressing the typhoid and cholera epidemics that resulted from sewage in the rivers.[3] However, this differs from present environmental law. The modern era of environmental law began in the early 1970s with the passage of the National Environmental Policy Act, the Clean Water Act, the Endangered Species Act, and the Clean Air Act.[4]

Environmental law in the modern era is all about trying to protect "The Other Infrastructure." An editorial cartoon in The Oregonian referred to "The Other Infrastructure," as the air and water and land that give us our quality of life, as well as, the mountains, the rivers, the soils, and the forest that we in the West prize for its very nature.[5]

In the West, that infrastructure is mostly about water quality and water quantity. The inquiry into watershed protection in the West, usually begins with water quantity and is later followed by water quality, land use, and a host of other issues. Is it possible to put water in perspective in the West?[6] In a global and national context, it is helpful to start with statistics regarding freshwater supply. On our "blue planet," the total water supply consists of 97.5 percent saltwater, which is generally unavailable for human use, and only 2.5 percent freshwater. Of this 2.5 percent freshwater, only 0.3 percent is renewable on an annual basis and 69 percent of the freshwater supply is locked in glaciers and permanent snow cover.[7]



Considering the amount of freshwater available for consumption, worldwide population growth is a significant concern. Worldwide population reached six billion people in 2000, with projections of another two to six billion people by 2050.[8] The world's population has already doubled in my lifetime, and it could easily double once again, if I live anywhere near actuarial standards for my lifespan. The booming population is a frightening thought for water supplies, quality of life, biodiversity, and ecosystem health. Some say that we do not have a population growth problem in the West or in the United States as a whole. However, even a brief look at population growth and water demand issues along Colorado's front range, or in the blooming desert of Las Vegas, Phoenix and Tucson, belies that argument.[9]

The current status of rivers and aquatic ecosystems in the United States reveals the challenges facing watershed restoration. According to the National Rivers Inventory of 1982, only two percent of the 3.2 million miles of rivers in the United States were considered high quality and worthy of protection.[10] Of the large rivers, only the Yellowstone is not severely altered. However, as reported in the "High Country News," conditions on the Yellowstone are rapidly deteriorating, not because of dams but largely because of the increasing number of housing developments along the floodplain and their accompanying riprap and riverbank lawns.[11] Only 42 of the medium sized rivers exceeding 125 miles in length have not been dammed in the United States.[12] That is an amazing statistic, considering the fact that this is something that has happened in this country largely in the last 75 years.

Even in our resource-rich country with low population density relative to the rest of the world, we suffer major ecological shock to our freshwater ecosystems, rivers, and watersheds. Aquatic species have been hammered. Forty percent of all freshwater fish are rare or endangered. Fifty-one percent of crayfish and sixty-seven percent of mollusk populations are considered rare, extinct or highly endangered.[13] Amphibian populations are crashing in many areas.[14] According to the American Fisheries Society, 214 salmon and steelhead stocks are endangered in the Pacific Northwest with almost half of them near extinction.[15] The extinction of Snake River sockeye is expected by 2017, unless there are major changes made on the Snake and Columbia River systems.[16] In 1992, a report of the National Academy of Sciences said "flowing freshwater systems," a fancy bureaucratic phrase for rivers, "are far more damaged than land based systems."[17]

Despite the progress made through our environmental laws since 1970, our ecosystems are being overwhelmed by three major trends, resulting in the massive disruption of our ecosystems.

The first is population growth and development sprawl, resulting in the loss of habitat nationwide. As the worldwide population increases, habitat loss consequently increases, causing ecosystem health and biological diversity to decline quickly.

The second trend is polluted runoff from urban and agricultural settings that flows into our rivers, streams, reservoirs and lakes. In urban areas, runoff from impervious surfaces including roads, roofs, parking lots, sidewalks, driveways, and patios may carry lawn chemicals, fertilizers, oil, heavy metals, animal waste, and sediment. In rural areas, largely agricultural chemicals, including fertilizers, pesticides, and herbicides, and sediment from plowed fields, clearcut forests, treeless riparian zones, and some road components, comprise runoff.[18]

The third major problem that we have nationwide has been called the "chemicalization of American land."[19] In 1960, prior to the publication of "Silent Spring," roughly 3.3 pounds of pesticides and herbicides were used per person in the United States.[20] Since Rachel Carson's publication, most people are aware of the banning of DDT and the modification of pesticides and herbicides. But did you know that in 1990, Americans applied over 8 pounds of pesticides and herbicides per capita?[21] Many of them are less toxic than those we used in the 1960s, and some of them dissipate faster, but we have more than doubled the amount of pesticides and herbicides that we apply per capita in the United States since 1960. Now, think back to the population chart -- what has the population of this country done since then? It has nearly doubled. Run those numbers and clearly, we have "chemicalized" our landscape to an extent that is almost inconceivable. We have lost the vibrancy of our soils as a result, and it is a vicious cycle.

BACKSLIDING

As we look at the history of ecosystem restoration, one lesson to be learned is that trying to deal with air pollution problems separate from water pollution problems and separate from land use issues does not work. We have tried for thirty years with separate environmental laws and it is not working. The trends are still largely downhill, although we have made some gains by getting rid of a lot of visible pollution. Our sky views are much cleaner in many urban areas and in some of our national parks, the views are better than they were thirty years ago. Lake Erie is no longer dead and our rivers do not change color as often with the daily discharges of industrial waste.[22]

However, those improvements have started to reverse again. Views in Big Bend and Grand Canyon National Parks are much worse because of pollution from coal-fired power plants in Mexico and the United States.[23] The Columbia Gorge National Scenic Area is now classified as "air quality limited" due to various industrial emissions, vehicle exhaust, and the City of Portland on the west end of the Gorge. We also know that some of the problem is global. Some of the contaminants causing visibility problems in the Columbia Gorge come from air pollution from Japan that have been traced through chemical signatures in the air samples.[24]

WATERSHEDS, CONSENSUS AND COUNCILS EAST AND WEST

These problems all lead to the "new" watershed ecosystem approach. I use the term "new," because watershed approaches have had a long history in this country. Think of where we would be now if we followed Major John Wesley Powell's advice at the Montana Constitutional Convention in 1889 when he suggested that a new state's county boundaries be aligned to the watershed boundaries in the state.[25] The Weeks Act, creating the White Mountain National Forest in New Hampshire in 1911, was in many ways the first watershed restoration act.[26] The Weeks Act came about because the forest of the White Mountains had been clear-cut and storm runoff was carrying enormous sediment loads into the Pemigewasset and Merrimack Rivers. This muddy water was going downstream and gumming up the works in the textile mills in Manchester and Nashua, New Hampshire, and in Lowell, Lawrence, and Haverhill, Massachusetts -- the heart of the industrial revolution in America. The mill owners became upset when their mill wheels were wearing out, due to the increased amount of sediment and the lack of usable water available for textile processing. The mill owners in conjunction with some of the early environmentalists, who founded the Society for the Protection of New Hampshire Forests in the late 1900s, worked together to get the Weeks Act passed. The creation of the White Mountain National Forest was a product of this effort.[27]

In New England and other parts of the East and Midwest, watershed councils, associations, alliances, have existed for 30-50 years in some areas. A long history of watershed advocacy exists in the East. In fact, formation of the EPA Office of Wetlands, Oceans and Watersheds (OWOW) in the 1980s was inspired by some New England projects.[28] This "new" watershed approach is not so new. It is new, however, in some areas of the West, but even in the West, a long history of watershed efforts exist.

"Watershed protection and restoration" was the environmental buzz phrase of the 1990s and watershed ecosystem restoration will continue to be a focus far into the future. In response to this emphasis on watershed approaches to ecosystem restoration and protection, watershed councils, alliances and associations in various forms and with various purposes have emerged all over the United States as "new institutions" facilitating local, place-based ecosystem conservation. The term "watershed council," however, has important regional differences. In the West, it implies a consensus based decision-making process, while watershed councils in the East, are a different animal altogether.

Eastern watershed councils are typically private, nonprofit river watershed protection associations, with paying members and professional staff working with many volunteers to educate and advocate for broad-based river protection and restoration. Funding for these groups begins with their members and individual donors, grants from private foundations, business contributions, and occasional government grant programs.

A number of Eastern watershed councils have a 20-50 year history of educating and informing people about watershed management/ecosystem protection for multi-state watersheds. These councils include: the Connecticut River Watershed Council, founded in the 1950s, the Merrimack River Watershed Council, founded in the 1970s, the Nashua River Watershed Association, founded in the 1979, the Housatonic Valley Association, founded in the 1940s, the Westport River Watershed Alliance, founded in 1975 as the Westport River Defense Fund, and others.

Watersheds and watershed advocacy and management groups vary tremendously in size and organization in the East and Midwest. River basins with watershed councils range from tiny 100 square mile coastal watersheds, like the Westport River watershed, to the 12,000 square mile Connecticut River Valley of Vermont, New Hampshire, Massachusetts and Connecticut. Watershed protection and restoration efforts in the East, South and Midwest often include statewide umbrella groups like the Massachusetts Watershed Coalition, the River Alliance of Connecticut, New York Rivers United, the River Alliance of Wisconsin, the Minnesota Rivers Council, and the Alabama Rivers Coalition, and sometimes large regional groups like the 23 state Mississippi River Basin Alliance. These organizations often provide policy communication, organizational and technical support, as well as other services to local groups in their area in addition to pursuing their own statewide or regional policy, advocacy, and education agendas. Many of the Eastern watershed advocacy organizations also sponsor or participate in interactive or consensus based processes as well.

In the West, the term watershed council usually indicates an organization quite different from those typically found in the East. Western watershed councils usually have several differentiating characteristics from their Eastern namesakes. First, they are usually "multi-stakeholder" organizations. Their governing boards are often informally organized without incorporation as nonprofits or any other kind of recognized legal entity and include not only self-identified environmental activists, but also ranchers, farmers, other business people, federal, state and local agencies like the Forest Service, County Commissioners, local agricultural districts and others with direct economic interests in the watershed.

Second, Western watershed councils generally run on some sort of consensus based decision-making model. Consensus-based decision-making requires that no decisions be made or positions taken by the council unless all members agree. Often these groups have an open membership policy, meaning that anyone or any interest group can attend or join a watershed council meeting and/or decision-making process at any time. Some variations on the pure consensus model allow for some version of a super-majority vote in situations where consensus is not reached and/or the group limits membership to previously identified interests or associations in the watershed.

Third, Western watershed councils are most often highly dependent on government funding or "certification" for funding and/or staff assistance. The Rocky Mountain and Pacific Coast states now have over 400 watershed councils at various stages of maturity.[29] Some are staffed, but most are not. They vary widely in composition, level of technical expertise and experience in collaborative decision-making.

One interesting sort of "super council" is For the Sake of the Salmon ("FSOS").[30] FSOS reflects each of the three characteristics of Western watershed councils discussed above, but on a regional basis. FSOS was organized in late 1995 as an unincorporated, voluntary association with no statutory authority, acting in a quasi-governmental capacity on a regional basis. This organization was originally inspired by Nisqually tribe elder Billy Frank, chairman of the Northwest Indian Fisheries Commission, who sought to bring together traditional enemies including decision-makers from state government, timber, utility and sportfishing industry groups, conservation organizations and others to work together under a common mission of restoring and protecting the Pacific salmon.

The FSOS governing board, a voluntary association with no legal authority for management of the funds or staff of the organization, consists of representatives of the Governors of California, Oregon, and Washington, the Northwest Indian Fisheries Commission, timber, agricultural, commercial and sport fishing industries, conservation groups, power companies, and various federal resource agencies, among others. FSOS operates with funding from various federal agencies, and the states of Oregon, Washington and California. In the first few years, the State of Oregon employed the executive director, while the federally created Pacific States Marine Fisheries Commission employed the rest of the staff.

FSOS represents both the promise and pitfalls of consensus efforts. Well into its first year of operations, it became clear that industry representatives, solely to protect their turf, used the consensus process followed by the FSOS Board. They sought to stop any effective substantive policy advances, which would have protected and/or led to the restoration of endangered salmon stocks. After the first six months, this sadly predictable state of operations became clear when many of the interest groups serving on the board sent mostly junior employees with no decision-making authority to board meetings.

FSOS programs are now limited to enhancing and restoring salmon streams though support of non-controversial watershed council efforts, providing technical, information, and agency coordination assistance, training programs, and grants of federal dollars in the three-state region.

QUAGMIRES

The yellow goggles defining the structure of the West's culture, economy and environment for the last 100 years are what Colorado law professor Charles Wilkinson calls the "Lords of Yesterday."[31] These "Lords" are a collection of laws, policies and ideas that include: the Hard Rock Mining Law of 1872, the Prior Appropriation doctrine for water use which originally arose out of the 'forty-niner' gold mining camps in California, the public range lands statutes and the Bureau of Land Management, the Organic Act of 1902, which established National Forest lands and the multiple use concept of forest management, and the Reclamation Act of 1902, which is what Marc Reisner calls the "Age of Dams," establishing the Bureau of Reclamation, the Army Corps of Engineers and leading to the damming of the West.[32] Wilkinson characterizes the attitudes towards the environment of the West of these "Lords of Yesterday," as covering the entire gamut of attention from indifference to disdain to contempt.

Quagmires result when conflicts arising from changes in cultural values conflict with the "Lords of Yesterday." Current environmental protection and restoration cultural values clash heavily with those legal structures.

Several of these "Lords" are in major transition. The era of dam building ended ten years ago and we are entering the era of dam removals.[33] The first big dams are starting to come out, including the Elwha dams in Washington. The Edwards Dam in Maine, built illegally in 1838, was removed last year. We are seeing enormous debate over the removal of four dams on the lower Snake River, that even three years ago I did not feel was possible to be on the front page of "The Oregonian" five days a week. Dam removals are occurring in Florida, Pennsylvania, Massachusetts, New Hampshire and California. The

State of Wisconsin has removed over 100 dams in the last decade and about 100 others are scheduled for removal. Clearly, we are entering a very different era when it comes to river management and dams.

Some people are saying that the revolution is over and the West is changed fundamentally and will never go back to the way it was. A recent issue of "High Country News" was headlined with an article titled "Beyond the Revolution."[34] The article maintains that the revolution of change in the use of Western public lands ended in the last few months. This end comes largely as a result of the Clinton administration's declaration of many new national monuments, as well as current efforts to push through a new roadless area policy for forest lands.

That judgment is premature in some areas. It is an indication of how land use and federal policies are rapidly changing. Salmon runs are in a quagmire in the Northwest because the salmon deal with all five of the "Lords of Yesterday." Salmon get slammed by forest clearcuts that increase stream temperatures and stream sedimentation. Salmon get slammed by dams that raise water temperatures to sometimes lethal levels in reservoirs, block spawning migration from the ocean, and block or slow outward migration from the spawning grounds. Uncontrolled grazing and its destruction of riparian habitat slam them. Mining waste and its poisonous residue and sediment runoff slam them. Every single "Lord of Yesterday" hits the salmon issue and it is no surprise that salmon populations have been on a severe downward spiral in the last 30 years.

The one "Lord of Yesterday" that has not seen much change at all is the Hard Rock Mining Act. We have seen some efforts by the federal government to impose moratoriums in some areas, and related instances of legalized bribery such as the New World Mine proposal that threatened to drain into the Clarks Fork of the Yellowstone. We have seen Canadian and U.S. mining companies all over the West make billions of dollars in gold and silver extraction and other metals, declare bankruptcy, and walk away, leaving their waste to the publicly subsidized Superfund hazardous waste cleanup law. There has not been much progress in that area and it is going to be a little while before there is, given the politics of the West right now and the financial ability of these mining companies to keep those Western politicians in place.[35]

We still have many new mine proposals occurring regularly throughout the West. We have paid a little more attention to the proliferation of mine proposals, due to the number of cyanide spills wiping out river system causing the collapse of mines in Europe.[36] It has happened in the United States and will likely happen here again. Unfortunately, I am afraid that it will take a disaster on the scale of the Exxon Valdez oil spill in Prince William Sound to precipitate change in the mining laws.

After the "Lords of Yesterday," the other major barrier concerns the global power of corporations and the economy of the new West. This new economic power is the subject of an article in "High Country News" by Laird Noh, who is a sheep rancher and a Republican state senator from Kimberly, Idaho.[37] Senator Noh speaks about the impact of the world economy on the rural areas of the West. He provides a couple of examples. However, some of you will be familiar with the story he tells about Utah Power and Light and its sale to Pacificorp, which is headquartered in Portland, Oregon. Pacificorp quickly closed all the local offices of Utah Power and Light and outages became more frequent. When outages happened, they were not repaired quickly, causing irrigation pumps to die and crops to be lost. It has gotten worse. Pacificorp was recently a target of acquisition by Scottish power. Several hearings were held throughout the region. In four hearings taking place in Idaho, 1200 people showed up, 113 testified, and 110 said no way. As Senator Noh said, if they had not all been good devout Mormons, they would have said "hell no."

Senator Noh's story of the Owyhee Valley in Idaho is even more shocking. In 1998, a hog farm was proposed for the Owyhee Valley, a 7,666 square mile county with a population of 10,000 bounded by the Snake River on the North and Nevada on the South. An international limited liability corporation called Sawtooth Farms proposed the hog farm for the Owyhee. The corporation came in with a plan to produce five million hogs a year. They were going to erect hog barns, pits for manure, which would destroy plants on almost every state owned section of land in Owyhee County. The proposed facilities stretched 35 miles East to West and 48 miles North to South.

The county is already experiencing some major growth. The Air Force has put through a major expansion of its bombing practice range. The Simplot Company has expanded their cattle feeding operation near Bruneau to 450,000 head per year. Not only that, Simplot is importing the grain for the feedlot, because the company can obtain grain from the Midwest at a cheaper cost per unit than Western grain.[38] The point of Senator Noh's article is that the new economy represented by these global corporations can easily overwhelm the rural culture of the West. We are looking at a rural landscape transforming at a stunning pace. The scale of these developments often leads to mutually exclusive choices, and irreversible impacts. This is something that our watershed-based processes could not even come close to dealing with. Senator Noh says we are in a full court press and that rural economies need to play a regulatory catch-up game of enormous stakes.

BUILDING SUSTAINABLE SYSTEMS

So, with that context, here are a few ideas with which we can start to build sustainable systems --- our watershed ecosystems, our community social systems, and new governmental systems. These are ideas that like the West itself are sometimes cantankerous and sometimes contradictory.

River Watershed Processes:

The watershed approach has many different benefits. River watersheds, as an organizing unit, often speak easily to people's sense of place. They can speak to residents and visitors alike, who share a common goal of quality of life for them and their children.

The pitfall in our watershed approach is the amount of "happy talk" that does not address the complex realities of watershed protection. We are dealing with not only the river watersheds, but also air sheds and air deposition of heavy metals. We are dealing with stakeholders and interests who live outside the watershed, never even setting foot there, but nevertheless retain the biggest economic power in the watershed. How those interests are both represented and dealt with often is an unanswered conundrum that can ultimately lead to the failure of efforts to protect local ecosystems. One key area to be examined is the transfer or devolution of governmental authority to regulate these multinational corporate actions locally in ways that makes sense to communities.

That might require changes in state corporation statutes and in federal laws, and local communities' ability to deal with the restrictions of the Commerce Clause of the United States Constitution and global trade treaties. It could also be as simple as using perfectly adequate existing laws to zone lands, enforce development boundaries, and permanently set aside valuable natural areas. Conversely, we also need to protect the broader public interest in management of resources held by the federal government in trust for the people of the entire United States.

We also need to look at the adequacy of technical resources and organizational support for watershed ecosystem efforts. This depends on the role of governing rules in a democracy and the balance between representative and direct democracy. Whether to involve citizens in watershed management is no longer an option for agency managers. Instead, it is a matter of whether it is done successfully.

Environmental Literacy is Abysmal in the United States, Despite High Levels of Concern:

I attended an EPA appropriations subcommittee hearing in Congress last spring and the commentary from members of Congress was shocking. The discussion included this gem from a notorious Representative from the State of Virginia, who spoke of new copper standards on a river in his district. He talked about there being "natural copper in the river that didn't bother the fish for years, so why is it bothering the fish now? If it is accumulating in some of these plants," he said, "why can't the fish eat another plant?" That is the state of environmental literacy in Congress and that is what is driving the debate about Total Maximum Daily Loads ("TMDLs")[39] and other environmental issues.

Do many people think that rural folks have a better understanding of environmental issues than urban folks? The survey literature says no. The level of environmental literacy and knowledge of environmental issues generally is abysmal in this country and it is the same in rural populations as it is

in urban populations. The same educational challenge exists in both urban and rural and it is a steep climb for basic ecosystem understanding. The National Environmental Education and Training Foundation (NEETF) publishes an annual survey of adult knowledge, behaviors and attitudes in the United States regarding environmental issues[40] This incredibly useful data for watershed coordinators, members or agency officials, is easily available on the Internet. This information permits one to determine what people know and what they do not know, enabling one to develop his educational outreach accordingly.

Build Partnerships: Interactive processes allow people to "let down their shield of ignorance."[41] That is a wonderful phrase that I got from a county commissioner in Florida, Maggie Hurchalla. Shared experience is important. It is one of the keys to making interactive watershed restoration efforts work. For years environmental groups have been taking politicians out on river trips. Maggie said that the best tool she ever used was to bring elected officials on primary school field trips, because that was about the level of dialogue that they could understand. Maggie also says to watch for "death by consensus" and to "never underestimate the power of turf" to sweep aside the desired future condition. "Progress," Maggie says, "often comes one bruise at a time." Shared experiences and shared bruises build trust over time and it is worthwhile to persevere.

Advocacy and Enforcement is Critical to Cooperative Success:

An underdeveloped, little noticed and critically important point runs through the vast and growing literature on cooperative environmental decision-making. The new book "Making Collaboration Work"[42] reports from various scholarly institutes and other organizations illustrating this point.[43] Fundamentally, few of these collaborative or consensus-based processes would happen or make much sense in the absence of bottom line performance standards created by the legal environmental requirements. For instance, buried in a document reviewing various collaborative decision-making processes is this statement: "While some view (and others fear) collaborative decision making as a replacement for traditional standard setting, it is used best as a complement to traditional regulatory approaches."[44]

Use common sense science: We will never have enough information to know exactly what is going on in some ecological systems. The meaning of common sense science goes back to the late 1800s and the cholera epidemics mentioned earlier. We did not know about bacterial transmission of disease at that point, but we knew that sewage in the streets was causing cholera and typhoid. So we got rid of the sewage in the streets, even though we did not know the mechanism that caused the diseases. We cleaned up the water supply and cholera and typhoid went away.

Use specific measurable results: Benchmarks and monitoring are important. We must measure the success of projects to assure that we are receiving the most "bang for the buck" in terms of ecosystem restoration. Measurable efforts to document specific results are way ahead of most of the human race. As humans, we don't like to be measured. In fact, we will do almost anything to get away from specific measurable results that might be used to hold us accountable in some way. It goes against our nature. However, it is also incredibly important to determine if something worthwhile is being accomplished.

To achieve specific measurable results it must be determined at the beginning what your "desired future condition" is for your watershed, in respect to stakeholders, communities, and the overall economic system. Once the desired future condition is recorded, validated by the group, and published, you then work backward from the desired future to figure out those benchmarks and tasks needed along the way. Set up processes to measure them while using adaptive management when results do not necessarily match up with your projections.

I am going to end with what Gary Lovelace said in his song at the beginning: "Keep 'em moving, get the lead out." Or what the noted Scottish humorist and land use planner, Ian McCarg said, "When in doubt, charge." And close with a quote from Margaret Mead, "Never doubt that a small group of thoughtful committed citizens can change the world. Indeed, it's the only thing that ever has."

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Adapted from the keynote speech for the Rocky Mountain Watershed Roundtable given by Peter Lavigne, Director, Watershed Management Professional Program of the Executive Leadership Institute at Portland State University, May 16, 2000. Chico Hot Springs, Montana.

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An avid sea kayaker and mountain climber, Peter directs the Watershed Management Professional Program of the Executive Leadership Institute and is an adjunct Associate Professor in the Public Administration Graduate Program at Portland State University. Peter is also the President of The Rivers Foundation of the Americas (RFA), which pledges to bring our boldest, highest and most expansive thinking and actions to forward our vision of all people knowing vibrant free-flowing rivers, drinking clean water, living on uncontaminated lands and breathing clean air. RFA's mission promotes the protection and restoration of rivers and their watersheds in North, Central and South America.

Throughout 20 years in river watershed protection and restoration, Peter has worked with some of the biggest dam(n) controversies on the continent from the Hydro-Quebec mega projects on James and Hudson Bays, the recently departed Edwards Dam on the Kennebec River in Maine, and more recently the effort of the Glen Canyon Institute to decommission the Glen Canyon Dam on the Colorado River.

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[1] This concept comes from an ontological course about human communication and the technology of language called the Landmark Forum, which I took in July 1996.

[2] *See* 33 U.S.C. §§ 401-413 (1899).

[3] *See* JAMES RIDGEWAY, THE POLITICS OF ECOLOGY (1970), for a detailed discussion of the history of environmental health statutes until the late 1960s.

[4] *See* Robert W. Adler, *Barriers To Watershed Protection*, 25 ENVTL. L. 973 (1995).

[5] *See The Other Infrastructure*, THE OREGONIAN, Jan. 29, 1993.

[6] Perhaps the only person who ever really has was the late Marc Reisner in his seminal 1986 work *Cadillac Desert* and in his many articles, speeches and presentations in the short decade and one half that he had until his death at age 51 in July, 2000. *See* MARC REISNER, CADILLAC DESERT:

THE AMERICAN WEST AND ITS DISAPPERARING WATER (1993).

[7] The amount of the freshwater supply locked in glaciers and permanent snow cover is changing thanks to global warming and consequent thinning of the polar ice packs causing more of that trapped freshwater to melt into salt water. This trend has resulted in some shocking events including the experience of tourists touring the North Pole this year, who arrived to find an ice free patch approximately a mile wide at the spot. *See* Jon Noble Wilford, *Startled visitors find ice-free North Pole*, THE OREGONIAN, Aug. 19, 2000, at A4.

[8] Dennis A. Ahlburg & James W. Vaupel, *500 Million Americans by 2050?*, Carrying Capacity Network FOCUS, Vol. 3, No. 1 (1993).

[9] *See, e.g.*, Thomas B. McKee, et al., *A History of Drought In Colorado: Lessons Learned And What Lies Ahead* (Colorado Water Resources Research Institute No. 9, 2d ed. 2000).

[10] DAVID WILCOVE, THE CONDOR'S SHADOW: THE LOSS AND RECOVERY OF WILDLIFE IN AMERICA 108 (2000).

[11] *See* Alan S. Kesselheim, *The last wild river*, THE HIGH COUNTRY NEWS, Mar. 27, 2000, at 1.

[12] *See* WILCOVE, *supra* note 10, at 108.

[13] *See* Bruce A. Stein and Stephanie R. Flack, *1997 Species Report Card: The Status of U.S. Plants and Animals* (The Nature Conservancy, 1997), *available at* http://consci.tnc.org/library/pubs/rptcard/title.html.

[14] *See, e.g.,* AmphibiaWeb, *at* http://elib.cs.berkeley.edu/aw/about.html; *Declining Amphibian Populations Task Force*, *at* http://www.open.ac.uk/daptf/.

[15] Willa Nehlsen et al., *Pacific Salmon at the Crossroads: Stocks at Risk from California, Oregon, Idaho, and Washington*, FISHERIES, March-Apr. 1991, at 4.

[16] Phillip R. Mundy, *Status and Expected Time to Extinction for Snake River Spring and Summer Chinook Stocks: The Doomsday Clock and Salmon Recovery Index Models Applied to the Snake River Basin* (Trout Unlimited, July 6, 1999). Dr. Mundy concluded that without prompt and significant action that wild Snake River spring and summer chinook salmon will be extinct between 2008-2017. *Id.*

[17] COMMITTEE ON RESTORATION OF AQUATIC ECOSYSTEMS: SCIENCE, TECHNOLGY AND PUBLIC POLICY ET AL., RESTORATION OF AQUATIC ECOSYSTEMS: SCIENCE, TECHNOLOGY AND PUBLIC POLICY BY THE NATIONAL RESEARCH COUNCIL (National Academy Press, 1992).

[18] *See, e.g.,* U.S. Environmental Protection Agency, *Liquid Assets 2000: America's Water Resources at a Turning Point* (Office of Water, EPA 840-B-00-001, May 2000); OREGON PROGRESS BOARD, THE OREGON STATE OF THE ENVIRONMENT REPORT 2000 108 (2000); U.S. Environmental Protection Agency, *Water Quality Conditions in the United States: A Profile from the 1998 National Water Quality Inventory Report to Congress* (Office of Water, EPA 841-F-00-006, June 2000).

[19] Kevin Coyle, at the time President of American Rivers, introduced me to this concept in the early 1990s.

[20] *See* RACHEL CARSON, SILENT SPRING 17 (1962).

[21] THEO COLBURN ET AL., OUR STOLEN FUTURE 138 (1997).

[22] WILCOVE, *supra* note 10, at 105-106.

[23] *See* Frances K. Sage, *Ongoing Air Pollution Issues in Big Bend, Texas* (Borderlines, Jan.

2000), *at* http://www.us-mex.org/borderlines/2000/bl63/bl63.html. *See also*, Alfredo D. Gidi, *The Mexican Position On The Visibility Problem In Big Bend National Park* (Borderlines Updater, Apr. 25, 2000), *at* http://www.us-mex.org/borderlines/updater/2000/april25persp.html. (Both publications are published by the Interhemispheric Resource Center's Border Information and Outreach Service (BIOS). The Borderlines UPDATER is an ezine intended to promote awareness of and online debate regarding key issues related to the U.S.-Mexico cross-border relationship).

[24] Kathie Durbin, *Pollution Chokes Air in Gorge*, COLUMBIAN (Vancouver, WA), Dec. 13, 1999, at A1.

[25] *See* Theodore M. Smith, *Watershed Counties*, RIVER VOICES, Fall-Winter 1995, at 8.

[26] RICHARD OBER, SHAPING THE LAND WE CALL NEW HAMPSHIRE: A LAND USE HISTORY 43 (1992).

[27] For those who think that Yellowstone and Yosemite have the most problems with over-visitation, White Mountain National Forest had over 7 million visitors in 1999 - more than Yosemite and Yellowstone combined.

[28] The Buzzards Bay Project and the Merrimack River Watershed Initiative, both run by EPA's Region I office in Boston, inspired the formation of OWOW in the late 1980s.

[29] RIVER NETWORK & THE NATIONAL PARK SERVICE, 1998-99 RIVER AND WATERSHED CONSERVATION DIRECTORY, *available at* http://www.rivernetwork.org/library/libnetdir.cfm. *See* DOUGLAS S. KENNEY, ET AL., THE NEW WATERSHED SOURCE BOOK (2000), *available at* http://www.colorado.edu/law/NRLC/Watershed_Chapters/Cover.pdf.

[30] In the interest of full disclosure, this writer served as Deputy Director of FSOS starting April 1, 1996, in its first full year of existence before leaving on April Fools Day, 1997.

[31] CHARLES WILKINSON, CROSSING THE NEXT MERIDIAN: LAND, WATER, AND THE FUTURE OF THE WEST 20 (Island Press, 1992).

[32] Or as I call it, "Dominy's Domination", after former Commissioner of Reclamation Floyd Dominy.

[33] Rita Haberman, *Dam Fights of the 1990s: Removals*, RIVER VOICES, Winter 1995, at 1.

[34] Ed Marston, *Beyond the Revolution*, HIGH COUNTRY NEWS, Apr. 10, 2000, *available at* http://www.hcn.org/servlets/hcn.Issue?issue_id=176.

[35] Montana is a happy exception to that trend with the passage of an initiative banning cyanide heap leach mining. Time will tell whether that ban survives court and ballot challenges. A similar initiative was defeated dramatically in Oregon a few years ago.

[36] Press Release, *Mineral Policy Center, Second Toxic Mine Spill in Romania Threatens the Danube ... Again* (Mar. 10, 2000), *available at* http://www.mineralpolicy.org/media/index.php3?nav=3&inc=release &release=49.

[37] Laird Noh, *The Old West is small potatoes in the new economy*, HIGH COUNTRY NEWS, Apr. 10, 2000, *available at* http://www.hcn.org/servlets/hcn.Article?article_id=5710.

[38] Of course many western environmental advocates have been saying for a long time that raising irrigated grains in the high desert makes no sense from many perspectives.

[39] Total Maximum Daily Loads of pollutants in each affected watershed as regulated under the Clean Water Act.

[40] *See* National Environmental Education & Training Foundation, *Roper Starch National Report Card, available at* http://www.neetf.org/roper/roper.shtm.

[41] *See* PETER LAVIGNE, THE WATERSHED INNOVATORS WORKSHOP PROCEEDINGS (River Network, 1995).

[42] JULIA M. WONDOLLECK & STEVEN L. YAFFEE, MAKING COLLABORATION WORK: LESSONS FROM INNOVATION IN NATURAL RESOURCE MANAGEMENT (2000).

[43] *See, e.g.,* NATURAL RESOURCES LAW CENTER, THE WATERSHED SOURCE BOOK (1996); PAUL E. DE JOGH & SEAN CAPTAIN, OUR COMMON JOURNEY: A PIONEERING APPROACH TO COOPERATIVE ENVIRONMENTAL MANAGEMENT (1999); DOUGLAS S. KENNEY, ARGUING ABOUT CONSENSUS: EXAMINING THE CASE AGAINST WESTERN WATERSHED INITIATIVES AND OTHER COLLABORATIVE GROUPS ACTIVE IN NATURAL RESOURCES MANAGEMENT (Natural Resources Law Center 2000); U.S. ENVIRONMENTAL PROTECTION AGENCY, EPA'S FRAMEWORK FOR COMMUNITY-BASED ENVIRONMENTAL PROTECTION, (Office of Policy, Office of Reinvention, EPA 237-K-99-001, Feb. 1999); CHUCK W. HUNTINGTON & SARI SOMMARSTROM, AN EVALUATION OF SELECTED WATERSHED COUNCILS IN THE PACIFIC NORTHWEST AND NORTHERN CALIFORNIA (Pacific Rivers Council and Trout Unlimited, Jan. 2000).

[44] WONDOLLECK, *supra* note 41, at 240.