

River Voices



Flood Policy and Management: *A Post-Galloway Progress Report*

by Scott Faber

Unlike no other event in our nation's modern history, the Great Flood of 1993 forced the nation to question assumptions about roles and responsibilities for flood-loss reduction.

For 150 years, federal programs had slowly assumed more and more responsibility for flood control and risk management. Long-established policies emphasized structural flood control, such as levees, channels and dams. But the Great Flood of 1993 ignited a national debate about such policies and practices.

The need to reform flood policies could no longer be ignored.

In January 1994, the Clinton Administration's Floodplain Management Task Force handed the Inter-agency Floodplain Management Review Committee three directives: 1) to delineate the major causes and consequences of the 1993 Midwest floods; 2) to evaluate the performance of existing floodplain management and related watershed programs; and 3) to make recommendations on changes in current federal policies, programs and activities. The result was a June 1994 report, commonly known as the "Galloway Report," with more than 60 recommended actions. In the report cover letter, Brigadier General Galloway captured the key theme of the report: "It is time to share responsibility and accountability for accomplishing floodplain management among all levels of government and with the citizens of the nation." Has anything changed?

Shattering Misconceptions of Flood Control

Perhaps the most significant reform occurred not in Washington, D.C., but in floodplain communities, where long-held misconceptions about flood control projects were permanently shattered. Although levees provide a limited level of protection, structural flood control projects often create a false sense of security which encourages floodplain development, multiplying the consequences of the levees' inevitable failure. After spending a tremendous amount of money on such projects nationally, flood losses have nearly tripled since 1951, to more than \$4 billion annually (when adjusted for inflation).

Relocation and land acquisition have been used in the past to reduce losses associated with flooding, but the Great Flood of 1993 sparked the first large-scale exodus from the floodplain since Noah constructed the ark. Rather than return to the river's edge, floodplain landowners throughout the Midwest voluntarily relocated more than 8,000 homes and business — 10 percent of all structures damaged by the flood —

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Give the river room to roam



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River Network is a national nonprofit organization whose mission is to help people organize to protect and restore rivers and watersheds.

We support river and watershed advocates at the local, state and regional levels, help them build effective organizations, and promote our working together to build a nationwide movement for rivers and watersheds. River Network also acquires and conserves riverlands that are critical to the services that rivers perform for human communities: drinking water supply, floodplain management, fish and wildlife habitat, recreation and open space.

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From the President

The times are changing in the world of river protection. This week came the news that FERC is recommending the removal of Edwards Dam on the Kennebec River in Maine, instead of relicensing. This, of course, is thanks to relentless pressure from river activists.

An even bigger change is this: floods have become a reason to restore rivers rather than dam them. In the wake of the Great Flood of '93 in the upper Mississippi Basin and numerous floods since then, a consensus has emerged that the best solution to flood damages is to restore the natural river floodplains that contain and utilize floodwaters. Many districts of the Army Corps of Engineers are embracing the idea that we need to give rivers room to flood.

Flood protection is one of those powerful “people” reasons for restoring river ecosystems, along with clean drinking water and recreation. The folks on the street understand that dams cost billions and don't necessarily work, you can't fight nature, we have to get out of the river's way, and we don't want to subsidize people who are foolish enough to build in the floodplain.

In a flood-prone watershed, you will find numerous tools for floodplain restoration, tools at the federal, state, local and private levels. This issue of River Voices will give you lots of ideas. (The article by Roger Harrison will also warn you about the continuing danger of wrong-headed responses to flooding.) We very much want to hear about your experiences and ideas. That's what a network is for, to enable us to educate each other, and thereby to raise the “standard of practice” for river protection throughout the country. Please write us a letter or send us materials that cast light on this issue of flooding and floodplain management. We'll pass it on to the network.

Speaking of networks, we're still enjoying the good feelings and constructive ideas that came out of two recent River Network events: the Northeast Watershed Roundtable in Northfield, Massachusetts, and the Northwest River and Watershed Rally on the South Fork Payette River in Idaho. We hope you were able to attend. We look forward to the day when we can convene river rallies in every region in the country.

This is my last *River Voices* message. On October 1, Ken Margolis will take over as President of River Network and I will become Director of our Riverlands Conservancy program. It's been fulfilling to watch River Voices become a preeminent journal of river conservation, under the direction of Rita Haberman (now on staff with the Willamette Riverkeeper). My thanks to all of you who have joined the network as Partners—thanks for your commitment to the cause and the craft of river protection.

Sincerely,



Phillip Wallin
President



© photo by Linda Killewer

An even bigger change is this: floods have become a reason to restore rivers rather than dam them.

Flood Policy and Management

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from harm's way and voluntarily enrolled more than 50,000 acres of floodplain farmlands into federal easement programs.

Flood-weary homeowners took advantage of amendments to federal disaster laws which set aside 15 percent of all disaster relief for relocation, land acquisition and other forms of hazard mitigation. In some cases, entire communities were relocated to higher ground, permanently reducing the threat of future floods. In Grafton, Illinois, near the confluence of the Illinois and Mississippi rivers, dozens of homes have been relocated to a 235-acre site on the bluff and been replaced by a park and marina to attract recreation and tourism. The entire town of

Grafton, Illinois, (see below) was relocated to higher ground, as were large portions of St. Charles, Missouri, one of the nation's most flood-prone communities. Several levee districts in Iowa and Missouri — including one district which repaired its levee 16 times since 1910 — opted to enroll its land into state and federal easement and acquisition programs.

Federal Policy Reforms

In addition to flood management, Congress and the Clinton Administration also made several important changes at the local level, and have moved on many of the recommendations from the "Galloway Report."

- The Federal Crop Insurance

program has been reformed to limit disaster assistance payments and to increase participation. Rather than continue to provide disaster relief for flood-prone farmers, Congress dramatically restructured the program to require landowners to simply purchase insurance, eliminating a powerful subsidy for farming on marginal lands.

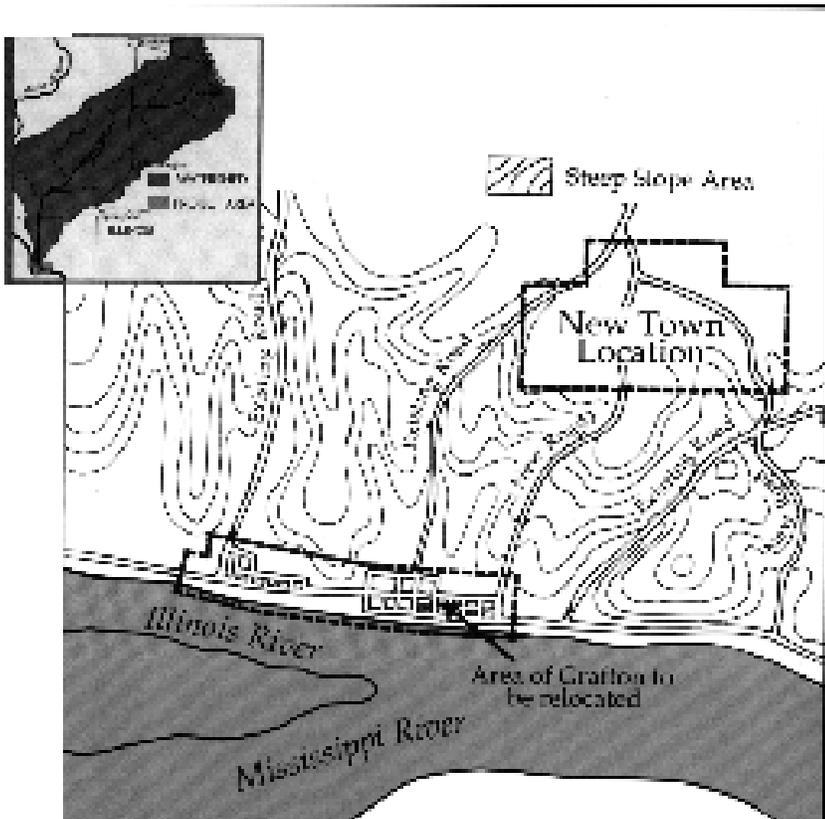
- An ongoing relocation program has been established independent of disaster declarations. Although federal funds were available immediately after the Great Flood of 1993, the federal government has not provided communities funding to relocate homes and businesses before the next flood.

Congress reformed the federal flood insurance program to set aside \$20 million annually for such projects, and the funds will be derived from flood insurance premiums.

- The acquisition of flood insurance policies has increased through mandatory purchase requirements and improved marketing. The Federal Emergency Management Agency (FEMA) has aggressively promoted flood insurance through television, radio and print advertisement, doubling the number of policyholders in just four years.

- The National Flood Insurance Program's (NFIP) Community Rating System has been modified to encourage communities to develop floodplain management plans. The federal flood insurance program is a quid pro quo — communities must meet certain building code requirements in order to participate in the program. Communities which go above and beyond the minimum requirements of the federal insurance program receive discounts on their flood insurance premiums.

- The Corps's environmental mission has been expanded, increasing appropriations for environmental restoration projects. Two of the largest



In Grafton, Illinois, home to 900 people, 262 structures were damaged during the 1993 flood. The community opted to develop a 235-acre relocation site above the floodplain and use the former town site for riverside recreation, open space and restored habitat.

budget requests by the Clinton Administration for FY 1998 relate to the restoration of nationally significant water resources. In addition, Congress and the Clinton Administration increased flexibility and funding for the Corps' Section 1135 Program, which allows the Corps to participate in small-scale restoration projects, including reforestation of portions of the Mississippi River floodplain in Illinois and efforts to transplant seagrass in the Laguna Madre in Texas.

Unfinished Reforms

Congress and the Clinton Administration have failed, however, to implement many of the other recommendations in the "Galloway Report." Some of the most notable include:

- enact a National Floodplain Management Act which would clearly define the roles and responsibilities of federal, state, tribal and local governments; provide fiscal support for state and local floodplain management activities; and recognize states as the nation's principal floodplain managers;
- revitalize the Water Resources Council to coordinate federal and federal-state-tribal activities in water resources;
- reestablish basin commissions to provide a forum for federal-state-tribal coordination on regional issues;
- establish a task force to develop common procedures for federal buyout programs;
- continue the development of a basinwide hydrologic model for the Upper Mississippi River Basin; and
- reform U.S. Army Corps of Engineers planning regulations.

Reforming the Corps

Although many agencies influence floodplain decision-making, the Army Corps of Engineers flood control program has had far greater influence on inappropriate floodplain develop-

ment than the NFIP. Hundreds of dams and thousands of miles of Corps levees and floodwalls have encouraged development in flood-prone areas. Existing Corps projects continue to influence the management of most major river systems, including the Mississippi, Missouri, Ohio and Columbia rivers.

Although local government is ultimately responsible for decisions regarding land use, flood control projects constructed by the Corps provide a powerful incentive for

Escalating Flood Damage Costs in the U.S.

Over the last 30 years, average annual riverine flood damages have exceeded \$2 billion. Over the last 10, they have been more than \$3 billion.

The Galloway Report, 1994

floodplain development. And, as revenue-hungry communities continue to develop flood-prone areas, the Corps continues to be a somewhat reluctant co-conspirator in plans to make such development seem economically sensible.

Corps planning regulations must be changed to allow non-structural flood control projects to better compete with structural flood projects. Although Congressional preference for levees and dams has played a powerful role in the development of federal flood control policy, the Corps' analysis of benefits and costs strongly favors structural flood control projects. Today, the benefits of flood control projects are determined by calculating the damages they prevent. Benefits are determined by delineating the affected area, collecting historical data on the flooding, forecasting

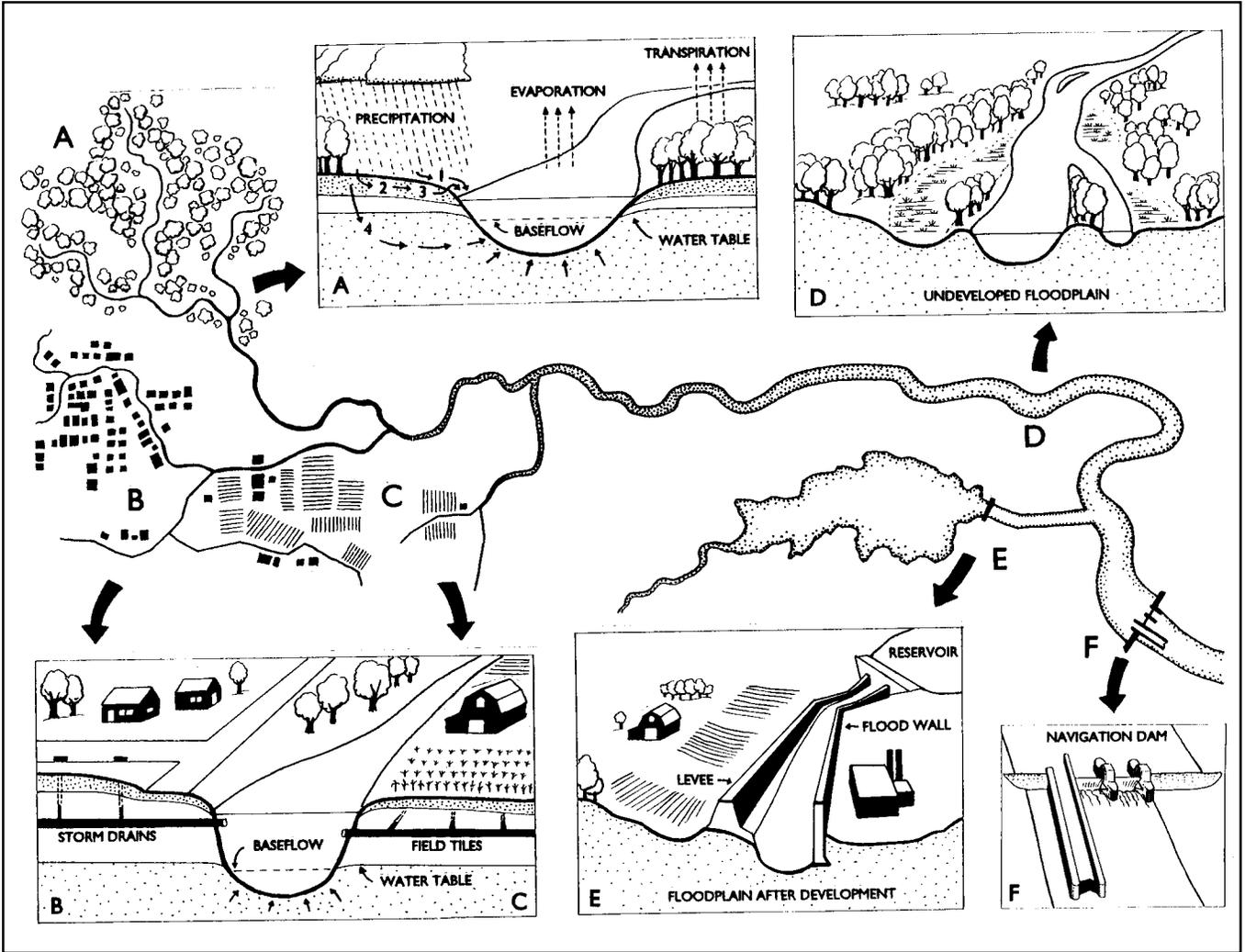
activities in the area, and estimating future flood damages. For example, the benefits of a project designed to protect floodplains planted with corn and soybeans would be equal to the loss of profits the farmer would suffer when floods eliminated his crop. The actual benefits are calculated by determining the per acre value of the crop, but that figure is then annualized over the projected life of the flood control project. The "costs" are the costs of constructing the flood control project. If the benefit-to-cost ratio is greater than 1.0, the project is recommended for Congressional approval.

Five significant criticisms have been made regarding the Corps' calculation of benefits and costs, including: 1) failure to consider the flood control benefits of temporary storage of floodwaters in the floodplain; 2) failure to consider the catastrophic costs associated with the failure of a flood control project; 3) failure to include the environmental benefits of undeveloped floodplains and the environmental costs of flood control projects; 4) conservative estimates of recreation benefits; and 5) the Corps' reluctance to include the non-market or intrinsic value of natural resources in their benefit calculations.

In general, the Corps' cost-benefit analysis understates both the costs of floodplain development — catastrophic flood losses and environmental costs — and the benefits of undeveloped floodplains — flood storage, habitat for wildlife, improved water quality and enhanced recreation. Rather than scrutinize the calculation of these benefits and costs, Congress more often plays the role of rubber stamp.

The Role of River Groups in Additional Flood Reform

River and watershed conservation groups can play a vital role in making more positive changes in flood reform. A few steps organizations can take include:



Natural pathways of water moving downhill, and human influences on hydrology. An undisturbed, forested watershed (A) is used to illustrate basic principles. Runoff from precipitation can be divided into four components. Overland flow (1) occurs when precipitation exceeds the infiltration capacity of the soil. Shallow subsurface stormflow (2) represents water that infiltrates the soil but is routed relatively quickly to the stream channel. Saturated overland flow (3) occurs where the water table is close to the surface, such as adjacent to the stream channel, upstream of first-order tributaries, and in soils saturated by prior precipitation. Groundwater flow (4) represents relatively deep and slow pathways of water movement, and provides water to the stream channel even during periods of little or no precipitation. Collectively, overland and shallow subsurface flow pathways create the peaks in the hydrograph that are the river's response to storm events, whereas deeper groundwater pathways are responsible for baseflow. Urbanized (B) and agricultural (C) land uses increase surface flow by increasing the extent of impermeable surfaces, reducing vegetation cover, and installing drainage systems. Relative to the unaltered state, channels often are scoured to greater depth by unnaturally high flood crests, and water tables are lowered, causing baseflow to drop. Levee or flood walls (E) are constructed along both banks to contain fast-flowing flood waters. Channels often deepen in response to these lateral constraints, and the river ecosystem gives up its previously diverse habitats comprised of side-channels, wetlands and episodically flooded lowlands (D). Dams impede the downstream movement of water and can greatly modify a river's flow regime, depending on whether they are operated for storage (E) or as "run-of-river," such as for navigation.

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• Become an active constituency of the Corps by promoting local restoration projects within Corps districts and urging Congress and the Clinton Administration to support the Corps' emerging environmental mission.

• Sign on to joint testimony to reform the Corps and other agencies. More than 150 local river groups recently submitted joint testimony to the Corps' appropriating subcommittees to support Corps' environmental restoration projects.

• When proposed structural projects ignore the environmental consequences of levees and dams, work with private engineers and hydrologists to devise alternatives which reduce flood losses and meet other objectives for our riverfronts.

Tools for Reducing Flood Losses in Your Watershed

- Tap into the expertise of the National Park Service's Rivers, Trails & Conservation Assistance Program to initiate, plan and implement multi-objective flood management programs. Call (202) 343-3758 for the office nearest you.

- Learn about and from the work of other river conservationists addressing flood issues. Successful strategies typically include promoting the economic value of healthy rivers: clean water, recreation, fisheries, and tourism; and promoting non-structural alternatives: relocation and land acquisition from willing sellers. This issue of *River Voices* has several examples, as does *Floods, Floodplains and Folks* (see page 21).

Conclusion

On the third anniversary of the Galloway Report, some significant reforms have been made to federal flood control policies, but current policies continue to demonstrate a preference for structural flood control projects. Despite the lure of structural flood control, however, many floodplain communities are rejecting levees and dams in favor of solutions which maximize all of the values of their riverside lands, including recreation, pollution prevention, and habitat for wildlife. Both strategies of reforming policy at the federal level and multi-objective flood management planning and practices at the local watershed level are essential in moving our country toward more sound flood management and more holistic river management. 🐟

Scott Faber is director of floodplain programs for American Rivers, a national river conservation group based in Washington, D.C. To learn more about national floodplain policy reform, reforming the Corps and alternative flood management techniques, contact American Rivers at (800) 296-6900.

Planning and Zoning - Comprehensive plans and land use plans specify how a community should be developed (and where development should not occur). Through these plans, uses of the land can be tailored to match the land's hazards. For example, flood hazard areas can be reserved for parks, golf courses, backyards, wildlife refuges, natural areas or similar uses that are compatible with the natural flooding process.

Open Space Preservation - Keeping the floodplain free from development is the surest way to prevent flood damage. Open space preservation should not be limited to floodplains, because some sites in the watershed (but outside the floodplain) may be crucial to controlling runoff that adds to the flood problem. Areas that need to be preserved in a natural state should be listed in land use and capital improvement plans.

Floodplain Development Regulations - Zoning and open space preservation work to keep damage-prone development out of hazardous or sensitive areas. Floodplain development regulations impose construction standards on what is allowed to be built in the floodplain. They protect buildings, roads, and other projects from flood damage and also prevent development from aggravating the flood problem. The three most common types of floodplain regulations are subdivision ordinances, building codes, and "stand-alone" floodplain ordinances.

Watershed Management - Several measures can help reduce runoff of stormwater and snowmelt throughout the watershed. Retention and detention regulations, usually part of a subdivision ordinance, require developers to build retention or detention basins to minimize the increases in runoff caused by new impervious surfaces and new drainage systems. Best management practices (BMPs) reduce polluted runoff entering waterways. Pollutants in runoff may include lawn fertilizers, pesticides, farm chemicals, oils from street surfaces and industrial areas.

Wetlands Protection - Wetlands is the collective term for marshes, swamps, bogs, and similar areas found in flat vegetated areas, in depressions in the landscape, and between dry land and water along edges of streams, rivers, lakes and coastlines. Wetlands filter runoff and adjacent surface waters to protect the quality of lakes, bays and rivers, and protect many of our sources of drinking water. They can store large amounts of flood waters, slowing and reducing downstream flows. They can protect shorelines from erosion. Wetlands serve as a source of many commercially and recreationally valuable species of fish, shellfish, and wildlife.

Real Estate Disclosure Laws or Policies - After a flood, people often say they would have taken steps to protect themselves if only they had known they had purchased a flood-prone property. All federally regulated lending institutions must tell people who apply for a mortgage or other loan whether or not the building that secures the loan lies in a floodplain as shown on the flood Insurance Rate Map. Because the deadline for meeting this requirement is only five days before closing, often the applicants are already committed to purchasing the property when they first learn of the flood hazard. State laws and local practices by real estate boards can overcome this deficiency and advise newcomers about the hazard earlier.

Property Relocation and Acquisition - Moving a flood-prone building to higher ground is the surest and safest way to protect it from flooding. Acquisition of flood-prone property is undertaken by a government agency, so the cost is not borne by the property owner. After any structures are removed, the land is usually converted to public use, such as a park, or allowed to revert to natural conditions. There are a variety of funding programs that can support a local acquisition project, for example, more than 8000 home were acquired or relocated by FEMA after the 1993 Midwest Flood.

Source: *Using Multi-Objective Management to Reduce Flood Losses in Your Watershed* (ASFPM and U.S. EPA, 1996) See page 21 for ordering information.

Friends of the River Responding to the 1997 California Floods

Working with the Press, Scientists, and other Environmental Groups

by Charlie Casey with Rita Haberman

In the name of flood control and other rubrics, California rivers have been straight-jacketed by more than 6,000 miles of levees and backed-up by more than 1,000 dams. The engineering fix, however, does not always work. Despite these structural solutions to flood risks, in January 1997, rivers up and down the state experienced massive flows, swelled to historic levels and caused record damages.

The 1997 New Year's floods in California killed eight people, damaged or destroyed almost 20,000 homes and caused some \$2 billion in property damages. The media in California (and elsewhere) gave the flooding disaster extensive coverage. Friends of the River (FOR), California's 25-year-old, statewide river conservation group, successfully seized the teachable moment. FOR grabbed the opportunity created by the flood disaster to promote ideas beyond the long-held belief that all floods can be controlled.

FOR embraced and promoted a model of *flood management* as opposed

to *flood control*. Flood management encourages working with rivers and accepting the fact that floods will continue to occur. It also offers greater reliability and greater flood hazard reductions, and at a lower cost than the present system. FOR's successful response to California's floods includes great ideas and advice for other river and watershed advocacy organizations engaged in flood work.

Working with the Press

FOR delayed its initial reaction to the flood disaster. Some staff were concerned about appearing insensitive to the many thousands of flood victims if FOR grabbed the spotlight and talked about how to "live with floods" and the need to "give rivers more room to roam."

Indeed, those fears were not without reason because within days of the flood peak, a sarcastic *LA Times* column appeared with the title, "Be Careful What River You Ask For." It began by posing questions: "It's a wild river you

want? Where do you want it? Through your kitchen? In your upstairs bedroom? Save the river, you say?..."

This was precisely the scenario FOR feared: People vs. Rivers, Victims vs. Environmentalists. The column took sharp digs at river conservationists,

contrasting destructive flood waters and a bygone era of dam construction with environmental "purists" and rivers "suitable for a Sierra Club calendar."

The author of this column was the only prominent naysayer FOR encountered. In fact, the same issue of the *LA Times* also featured an editorial entitled "Disasters and the Era of Limits," which stated that the "days of massive new dams and [flood] control projects are over." It was joined by articles and editorials from around the state and nation adding similar themes about limited budgets and the need to respect the power of nature rather than always assuming that humans can fully control it.

During those initial days in January, FOR responded to the events as they unfolded (sort of like "read and run" river rafting, where you just go with the flow). But after a few days, FOR became more pro-active with press releases, media advisories, phone calls and letters to lawmakers.

Media Advisories and Fact Sheets

FOR's first media advisory — "River Group Calls for Review of Existing Flood Protection System" — showcased a message of fixing California's "existing" flood control facilities. The advisory included themes from FOR's longtime experience in American River flood issues (part of its efforts against the infamous Auburn dam) to highlight alternatives to building more dams in California.

The advisory also referenced the well-respected "Galloway Report" and recommended a series of measures for improving public safety while enhancing important features of the state's rivers. These measures included calling for levee setbacks and reinforcement, improving flood operations at existing

Michael Nevins/Army Corps of Engineers



Huge weirs along the Sacramento River allow for planned flooding in bypass areas, thus helping protect communities downstream.

dams, and increasing both restrictive land use decisions and hazard mitigation programs.

Recognizing that elected officials were quickly trying to grapple with the crisis, FOR also issued a series of letters and fact sheets to everyone from President Clinton to the president of the University of California. The U.C. Chief had indicated an interest in appointing a special academic task force to analyze the floods. Repeatedly, FOR noted that the floods represented an *opportunity*, an ideal chance to combine increased flood protection with restoration of sections of California's rivers.

A one-page attachment to the letters noted "new opportunities" to improve public safety and river ecosystems. The new opportunities were an amalgam of ideas developed by the "Galloway Report," U.C. Davis Professor Jeffrey Mount, the California State Lands Commission, and several other respected sources. FOR provided a snapshot of important conservation/flood management themes that it wanted decision-makers to grasp and embrace quickly.

Toward the end of January, the California Legislature began a series of information hearings on the 1997 floods. The first hearing occurred in a land use committee, which was an ideal place to vigorously call for better floodplain management, and keeping people out of harm's way.

In his testimony before the House Committee, Ron Stork, FOR's associate conservation director, shared the following words from a 30-year-old congressional document: "Floods are acts of God; Flood damages result from acts of men." This concise statement

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Principles of California Flood Management and Floodplain Restoration

In early 1997, partly in response to the New Year's floods in California, a group of 15 different environmental and fishing groups formulated a series of principles based on the scientific understanding of riverine processes and the repeated lessons gathered from disastrous flood events around the nation:

1. Restore river systems and functions that improve flood management while also bolstering the effectiveness of existing flood control systems:

- a. Restore to a meaningful extent the historic capacity of rivers and their floodplains to better accommodate flood waters by setting back levees to widen the floodway — the river channel during high flows.
- b. Increase wetland and riverside forest habitat within the widened river zone.
- c. Increase the use of planned floodplain flooding to reduce downstream flood peaks.
- d. Strengthen existing and properly sited levees at high risk, which protect high value floodplain uses that cannot be relocated from the floodplain.
- e. Reassess the operations of reservoirs and waterworks to ensure the efficient, reliable and prudent use of flood control space. In some cases, dams and waterworks need to be structurally modified to improve their ability to release water to avoid downstream flooding.
- f. Improve use of weather forecasting and monitoring upstream conditions to have a better "early warning system" of when a flood could be coming.

2. Better manage the uses of floodplains to minimize taxpayer expense and maximize environmental health:

- a. Eliminate incentives or subsidies for development in the most dangerous parts of the floodplain. No more people should be put in harm's way.
- b. Reform floodplain mapping programs so that they accurately portray the risks and consequences of anticipated flooding. Ensure that Californians understand when they are locating in a floodplain.
- c. Ensure that new structures unavoidably being built in floodplains are designed to resist damage from foreseeable future floods.
- d. Educate Californians on the risks of living, working, or farming in areas prone to floods — and make sure they are willing to bear the appropriate financial responsibility for such use.
- e. Endeavor to relocate the most threatened Californians and communities who volunteer to move to safer locations.
- f. Ensure that state and local governments responsible for floodplain land use decisions bear an increased financial responsibility for flood recovery efforts.

3. Manage the entire watershed to provide the most protection from floods in an environmentally sensitive way:

- a. Discourage development in remaining wetlands and floodplains. Wetlands and functioning floodplains act as giant sponges which absorb and slow the progress of floodwaters.
- b. Use acquisition and easement programs to restore some of California's historical wetlands and floodplain acreage and to promote functional restoration of associated river systems.
- c. Discourage clearcutting and roadbuilding in areas prone to mudslides.
- d. Where possible, replace non-native hillside annual vegetation with native perennials to improve rainwater absorption and reduce hillside erosion. ◀

Responding to the 1997 California Floods

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underscored a critical theme that helped people understand the nature of the 1997 floods.

Questions from the media turned from “What happened?” to “Why did it happen?” Reporters and the public wanted to know, despite having the most extensive water works system in the world, how California could still experience its worst flood damages ever. Hadn’t dams and levees been built in order to protect us from these natural disasters?

Reporters and the public wanted to know, despite having the most extensive water works system in the world, how California could still experience its worst flood damages ever. Hadn’t dams and levees been built in order to protect us from these natural disasters?

Countering the New Dams Argument

Many people in California (and elsewhere) continue to believe that dams are the panacea for

protecting people from floods. Given this mindset, FOR spent a great deal of effort rejecting this myth.

Some of the key messages against new dams included:

- Why spend hundreds of millions of dollars on new projects when the existing dams could not protect us from flooding?
- Some of the worst flooding in California occurred downstream from two of the largest dams in the state. Who can guarantee that building more dams will provide more flood safety?
- We should focus on improving the management of the existing flood control system rather than building more dams. For example, the American River flood control system in Sacramento worked properly, in part, due to the years of work FOR invested in ensuring that the federal dam at Folsom was operated prudently, and that levees become more reliable.
- In California there are not any practical dam sites left. It is crucial to utilize the more than 1,000 dams that already exist before considering new ones.

· Flood control is only as strong as your weakest link. If levees downstream aren’t reliable then it doesn’t matter how big the dams are.

· When the reservoir behind a dam fills, it no longer provides flood protection. This scenario occurred in several reservoirs during the floods of 1997; the dams no longer provided flood control because the reservoirs were full.

· Larger floodways that can convey flood flows reliably and safely are much more valuable than adding storage behind a new dam.

· It is more financially prudent to invest in keeping people out of harm’s way than to rely on imperfect dams and levees.

Statement of Principles

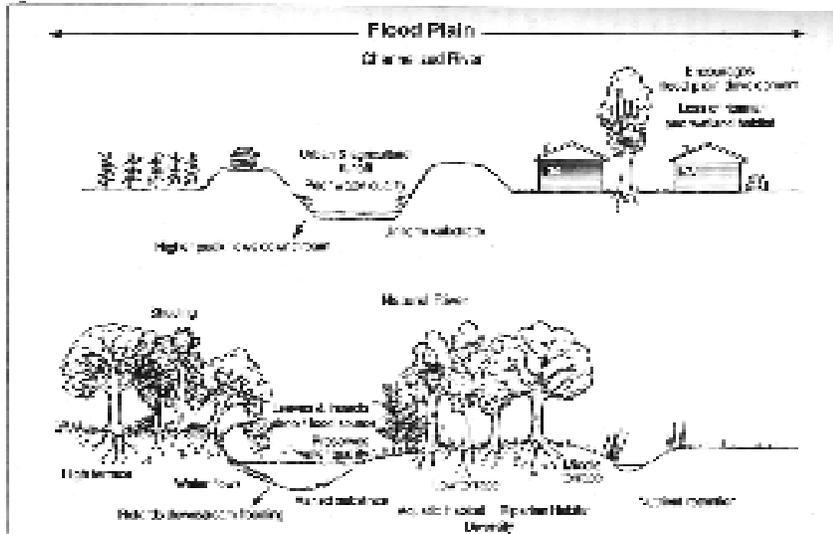
To provide the framework for increasing flood safety and enhancing the environment, a coalition of 15 conservation and fishing groups, including FOR, created a set of principles. The “Statement of Principles of California Flood Management and Floodplain Restoration” (see page 9) is based on the scientific understanding of riverine processes and the repeated lessons gathered from disastrous flood events around the nation. The key concept underlying the principles is that by accommodating periodic flooding with larger floodways and planned floodplain storage, there is an opportunity to both improve public safety and enhance river resources.

Jackie McCort and Barbara Boyle from the Sierra Club’s National Field Office in California spearheaded the creation of the set of principles.

Unified Message

The principles sparked a great response from the media, decision-

From: California Rivers: A Public Trust Report (1993)



makers, as well as river conservationists around the nation (through River Network's rivernet-info listserv). Clearly, the set of principles struck a chord, helping gather disparate themes, messages and ideas related to new approaches to flood protection and river restoration.

The development and use of the principles helped clarify concepts for everyone — environmental groups, the media, elected officials, and the public. Indeed, since many different environmentalists were being called by reporters for a reaction to the flood and the issues it entailed, having a unified message and response was a great help.

Working Relationships

It is often a difficult task to coordinate the efforts of a number of different environmental organizations with separate agendas and issues. Writing a document by committee can be quite challenging. Bringing together the 15 different groups that signed on to the principles, however, was not as difficult as it might seem. Many of the organizations had a long history of working with each other on other water policy issues. Within about three weeks, the groups reached an agreement.

The good working relationships that had been built and maintained amongst these various organizations contributed significantly to this efficient and timely process.

ESA Threats

Threats to the Endangered Species Act (ESA) were also a motivating factor in bringing many different groups together. Rep. Richard Pombo, a Central Valley congressman, and several state legislators led the charge against the Endangered Species Act, alleging

Photo: California Dept. of Water Resources



San Joaquin River levee break, January 1997.

that it was responsible for the flooding.

Pombo charged that the ESA regulations protecting insects and other critters prohibited necessary levee maintenance. However, he could not provide examples of actual problems. While this issue did not receive much press, it did act as a catalyst for California's environmental community to unite in dismissing Pombo's allegations and addressing the issues surrounding the 1997 floods.

Working with Scientific Experts

FOR has a long, rich history of successful river advocacy. To give FOR

credibility beyond the river conservation community, we took advantage of the respected scientific experts who were also commenting about why the floods happened.



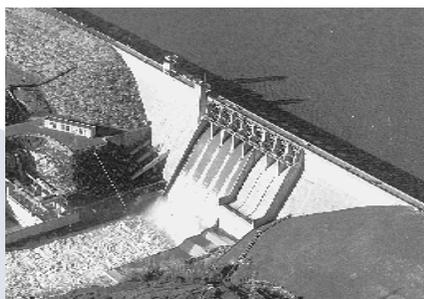
Most notable was Dr. Jeffrey Mount, chair of the Department of Geology at U.C.-Davis, and author of *California Rivers and Streams: The Conflict between Fluvial Processes and Land Use*. Dr. Mount's testimony complemented environmental comments and principles regarding floodplain

management and river restoration.

The professor is not only articulate, engaging, and working independently
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Responding to the 1997 California Floods

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“I think we should turn flood control on its head...the way to reduce flooding in one area is to promote flooding in others. For political, economic and environmental reasons, the traditional approach of raising levees and building dams is simply no longer viable. Store floods on the floodplains. That’s the way the rivers do it, and we should follow their lead.”

Dr. Jeffrey F. Mount, author:
California Rivers and Streams: The Conflict Between Fluvial Process and Land Use

from environmental groups, he is also extremely critical of an over-reliance on dams and, especially, levees. Dr. Mount coined the term “levee-aholics” for California’s addiction to controlling rivers and flooding with its thousands of miles of levees — levees which ultimately give a false sense of security and lead communities into flood-prone areas rather than completely protecting them from high water.

Dr. Mount has called the traditional response to flooding in California “serial engineering,” because the state has historically built “more” dams and levees after flood events rather than respecting the power of rivers.

FOR also worked with Dr. Philip Williams, an internationally renowned hydrologist and FOR Advisory Board member, to articulate the important points of approaching California’s floods from a new, and non-traditional perspective. Dr. Williams wrote a short analysis of the floods, highlighting improvements that needed to be made to the existing flood control system and emphasizing the need to restore floodplains. FOR reprinted an abridged version of the paper and distributed it widely to press contacts and lawmakers.

FOR also took every opportunity to note the importance of the well-known “Galloway Report,” and emphasize its relevance to issues confronting California as it grapples with the potential for more deadly floods.

The fact that FOR’s statements were echoed by experts, helped significantly. FOR became a clearinghouse for flood information, telling reporters about the “Galloway Report,” Phil Williams’ work on Oregon’s Willamette River and California’s Cosumnes River, and Professor Mount’s rivers book. FOR

would finish interviews by providing reporters with other contacts.

Reporters appreciate good suggestions that will help them with a story. Dr. Mount is especially good because he is a great interview and an acknowledged expert. Furthermore, all that press attention led to Dr. Mount testifying before both Congress and the California Legislature, which helped add more credibility and weight to the measures outlined in the flood principles statement (which was based in large part on the theories developed by river experts like Mount).

The scientific experts helped complement environmental views about flood safety and river restoration. It also helped make the issue resonate and continue longer. Politics is motion; everything that gives motion and activity helps maintain media interest, which, in this case, creates a real opportunity to showcase a new way to manage floods and restore rivers.

The Results

Press Coverage

FOR has received an impressive amount of media coverage in response to its efforts. The flood principles were good background information for the dozens of articles and editorials in *The Sacramento Bee*, *The San Francisco Examiner*, *The San Francisco Chronicle*, *Los Angeles Times* and *The New York Times*. Headlines like, “Moving Solution to Flood Costs,” “California’s Floods Change Thinking on the Need to Tame Rivers,” “Experts say people should relocate,” “Nature Lessons Learned Slowly”...were just some of the headlines seen.

photo: courtesy of The Nature Conservancy



Except for some isolated areas, much of the Cosumnes River has been squeezed by agricultural levees.

Funding

Foundations and major donors recognized FOR's important work and gave very generously this year. In fact the San Francisco Foundation put together a funders' briefing for fellow foundations and then invited FOR, the Environmental Defense Fund and The Nature Conservancy, among others to make presentations about flood protection and river restoration. It was very helpful.

State and Federal Policy Changes

FOR's flood response work has set the stage for changes to state level policies. FOR has been invited to testify before committees several times, asked to work on a flood-damage prevention bond act and been specifically invited to join a pair of somewhat conservative state lawmakers in press conferences on flood issues.

In May 1997, FOR staff participated in a legislative press conference along the banks of the American and Sacramento Rivers, to talk about "new opportunities" for improving flood protection. There FOR staff stood, alongside individuals and group representatives that FOR historically has been at odds with: the farm bureau, a

water district, dairy farmers, and Auburn Dam supporters. Also present were retired Gen. Galloway, representatives from The Nature Conservancy, Professor Mount, and others. All participants came to show their support for a proposed ballot initiative designed to give rivers more room to roam. Comments before the press embraced the "non-traditional" means of flood protection — expanding floodways by purchasing easements, setting back levees, and restricting development in flood-prone areas.

Although many political and economic hurdles remain, FOR views these events as a hopeful sign, and an indication that we are moving into a long-overdue era of more river-friendly flood management policies. ➤

Charlie Casey is the associate conservation director for FOR. He can be reached at FOR, 128 J Street, 2nd Floor, Sacramento, CA 95815-2207, (916) 442-3155, cec Casey@friendsoftheriver.org

For a copy of FOR's 12-page report From Beyond Flood Control: Flood Management and River Restoration, contact FOR.

The Next Flood: How safe is your house?

- Are you living or planning to buy property in a potentially flood-prone area? There are several ways of assessing that risk.
- Check with your community's flood protection administrator. Local officials who usually hold this position can be found with the planning or public utilities departments, or with a city manager's office.
- Assume you're at risk from flooding if you are within a government flood map.
- Government flood maps do not include the entire floodplain. You should ask the floodplain administrator if your community has mapped larger floods (larger than 100-year), or floods resulting from predicted failures of the flood control system.
- Floodplain administrators will give you fairly accurate answer for areas within the 100-year floodplain; they will give you wildly inaccurate answers for those areas outside the 100-year floodplain.

From Beyond Flood Control: Flood Management and River Restoration, Friends of the River, 1997.

Countering the "Quick-Fix" and Developing Long-Term Solutions West Virginia Rivers Coalition's Response to Floods

by Roger Harrison

Home to the headwaters of many great Appalachian rivers, West Virginia's 29,000 miles of rivers and streams are quick to rise causing devastating flash flooding. In the state's 134-year history, major flood events have occurred on average every 18 months. At this high frequency, flooding has become an inevitable way of life for generations of West Virginians. Yet, a series of devastating floods in the past decade has perpetuated a sort of "voodoo" flood management response from well-meaning citizens and decision-makers alike.

WV's Great Floods of 1996

At the same time many West Virginian communities were recovering from the November 1995 flood that killed 47 people and caused more than \$500 million in damages statewide, floods devastated the state again in 1996. When the waters receded for the final time, the Great Flood of 1996 had affected almost every West Virginian to some degree. In a 12-month period, President Clinton had declared West Virginia a federal disaster area on four separate occasions. State and federal agencies spent more than \$130 million in flood relief monies.

Obviously, West Virginians are frustrated by flooding and are eager to find "quick fix" solutions to minimize the loss of life and property. As one state sportswriter recently noted, this has created an atmosphere which gives credence to the old saying "The road to hell is paved with good intentions."

As an example, along West Virginia's Elk River, well-meaning local leaders decided to take matters into their own hands to stop floodwaters from washing

across the access road to the small river town of Bergoo. Ignoring Clean Water Act permits and potential environmental impacts, the county hired six bulldozer operators to dredge a new channel for the boulder-strewn stream. After they scooped out nearly a mile of stream, the U.S. Army Corps of Engineers issued a cease-and-desist order. An ugly media battle ensued as angry flood-ravaged residents, frustrated by the government's failure to solve their problem, won the favor of many state residents. Much of the press described how the good people of Bergoo had protected their town from future flooding. At the same time, the Corps is convinced the work has seriously destabilized the Elk's riverbank instead of stabilizing it.

"In essence, they've stacked up a bunch of marbles and expect them to form a water-tight levee," said Mike Spoor, spokesman for the Army Corps of Engineers. "What they've done is stack up huge piles of loose, smooth cobble from the riverbed with the expectation that those piles will hold back the high-velocity flows you get during a flood. No one in any [engineering] practice would have done that and expect it to work." Spoor concluded with an eerie foreboding, "God help the person who drives down that road when the levee breaks." The Corps has since turned the case over to the U.S. Environmental Protection Agency for further enforcement action against the community.

WVRC's Response and Success

Despite the obvious negative consequences of "vigilante flood prevention," such anecdotes are

commonplace today in West Virginia. Many elected officials and government decision-makers are advocating "quick-fix" solutions, such as dredging, to appease angry voters and frustrated flood victims.

As the state's premier river conservation organization, West Virginia Rivers Coalition (WVRC) has an obligation to educate decision-makers and the general public about flooding based on sound science and good public policy. In the past two years, WVRC has successfully defeated short-sighted legislative attempts to allow landowners to bulldoze streams without proper permits. The U.S. Army Corps of Engineers, bowing to political pressure and public outcry, has proposed a similar measure which would give a blanket permit to landowners to enter streams with heavy equipment in the name of flood protection. Sadly, along many West Virginia streams, you are just as likely to see a bulldozer as you are a blue heron or rainbow trout.

Like it or not, river and watershed groups must be active in flood management debates in states where flooding is a central problem. Public policies designed to be solutions to flooding may have major implications on land-use decisions, water quality regulations, and the overall physical, chemical and biological health of a state's rivers and streams. Regardless of your group's interests, be it recreation, water quality, land development, or wildlife habitat, get involved in flood response and flood policy. Here is a quick list of things river and watershed groups can do to encourage sound flood management policies:

Help when help is needed.

Many times, river advocates get a bad rap from local landowners who suggest that boaters and other river lovers only care about wild rivers and river critters, and not the people who live along the water's edge. During the Great Floods of 1996, WVRC mounted an aggressive flood relief campaign to help flood victims and complement the American Red Cross's efforts. WVRC organized dozens of volunteers to do property damage assessment for the Red Cross. WVRC also built partnerships with regional paddling clubs, local churches and hospitals, and shipped truckloads of cleaning supplies, baby food and diapers, and canned food to shelters across the state.

Our flood relief efforts provided WVRC with a two-fold benefit. First, we were able to demonstrate that we are a river advocacy group with compassion for riverside communities, and willing to help local people put their lives back together. Second, our front-line role in providing flood relief has enabled us to be leader in the debate over future flood management policies.

Talk about rivers in the context of watersheds.

West Virginia's multiple catastrophic flood events in the past decade have accentuated the need for watershed management that goes beyond the traditional approaches of dredging, dams, and levees. Most flood control measures in West Virginia, however, have been a piece-meal attempt to curb flooding for one community to the detriment of another. Take advantage of opportunities to talk with the media

continued on page 16



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West Virginia Rivers Coalition's Response to Floods

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about flood management on a watershed scale, not merely the impact of one project on a single community. WVRC has had some success in educating state leaders and citizens about the impacts of upstream activities to downstream communities.

Mobilize local watershed organizations.

All politics are local. If possible, build bridges with local watershed groups and help them to be the mouthpiece for sound flood management policies in their local areas. West Virginia's burgeoning, locally driven watershed movement, with more than 35 local groups, provides an effective local voice for implementing a consensus-driven statewide "blueprint" for flood management.

Advocate for gauge stations.

Early warning is the foundation of any sound flood management plan. When all else fails, homeowners must be given a chance to get out of harm's way. Additionally, gauges can decrease the risk to emergency service personnel responding to calls in flooded areas. Gauge stations are funded through a federal and state cost-share and provide essential information that not only gives early warning during a flood event, but also can predict future floods. In recent years, the state of West Virginia has been reluctant to provide its cost-share of \$200,000 despite the noted benefits to the state's residents.

Assemble a broad-based partnership.

Involving historically competing interests at the very beginning (and throughout) a process is essential to developing a level of trust and safeguarding against sabotage from any single interest group. Over the last year, WVRC has coordinated a diverse group of scientists, agency professionals, and agriculture interests to seek long-term solutions to the state's historical flooding woes. Presently,

WVRC is working closely with the state Farm Bureau, to win the support of the West Virginia Legislature and the Governor's office in developing a comprehensive floodplain management plan for the state.

Develop a blueprint for flood management.

Our hope is that through a broad-base of public and private partnerships, we can develop a "blueprint" for

flood management in West Virginia which will educate state citizens on the root causes of West Virginia's severe flooding problems and offer recommendations and solutions to state and local decision-makers. If we are successful, West Virginians will better understand the complicated dynamics of flooding including:

- the complex nature of rivers and their relationship to floodplains and watersheds;
- the impacts of upstream activities on downstream communities and landowners;

- alternatives to costly structural flood protection including flood-proofing, and relocation from the floodplain;

- the impacts of dredging and other "quick fixes" on future flooding and the degrading effects of such practices on the overall health of the watershed;

- the importance of community-based watershed planning involving all stakeholders; and

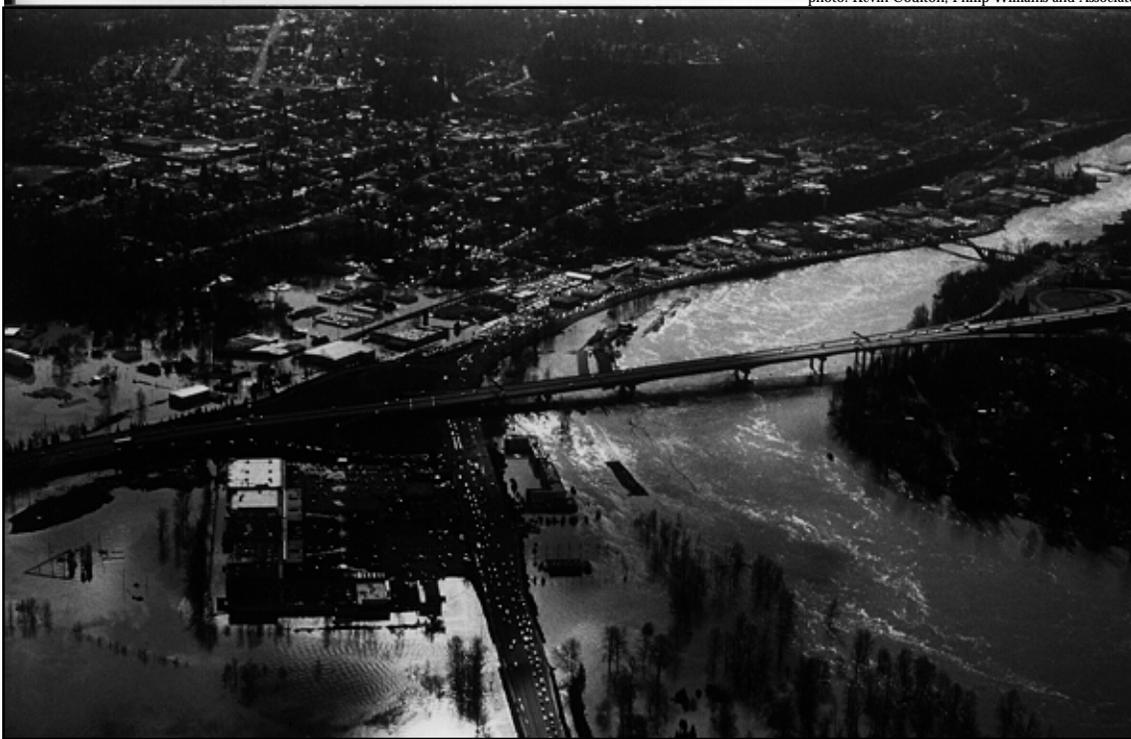
- the need for a statewide floodplain management program.

River and stream management in West Virginia is at a critical crossroads. The state has enacted legislation creating the framework for a watershed protection program, putting West Virginia in the forefront of the nationwide watershed movement. Yet, as we embark on this exciting new watershed initiative, flooding issues remain paramount as does the role of river and watershed conservation groups in finding solutions to flooding. ➤

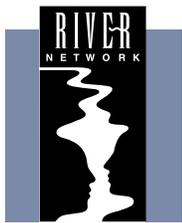
Roger Harrison has been the executive director of WVRC since 1990.

All politics are local. If possible, build bridges with local watershed groups and help them to be the mouthpiece for sound flood management policies in their local areas.

photo: Kevin Coulton, Philip Williams and Associates



The Willamette River flooding Oregon City (greater Portland-Metropolitan area) in February 1996. River Network's study found that restoring 20,000-50,000 acres of floodplains would reduce flood levels by two feet in cities like Portland.



Restoring the Floodplain of Oregon's Willamette River

by Phil Wallin

The Willamette is a big, brown Oregon river, tributary to the Columbia. Its basin is home to two-thirds of Oregon's population. Its hundred-mile corridor is the site of most of Oregon's economic growth in cities like Portland, Corvallis, Salem and Eugene. Its valley is one of the great agricultural regions in the country.

Before the cities and farms were here, the Willamette was a great braided river, rich in forests and wetlands, teeming with salmon and other fish and wildlife. As the Willamette Valley was settled, though, the complexity of the river ecosystem made it difficult to float logs and crops from Eugene to Portland. A field engineer for the Army Corps of Engineers noted in 1875 that the Willamette River channel was: cut up into so many useless

sloughs, and at each liable to undergo very marked and frequent changes... New channels are not infrequently cut out and old ones have been nearly left bare; the latter, after being closed for years are again reopened... Captain Miller, one of the oldest and most experienced pilots... has stated that he has never run the same channel for two consecutive years between Harrisburg and Eugene (Report of the Chief of Engineers, U.S. Army, 1875).

Beginning in 1875, the Corps of Engineers began to convert the Willamette from a complex river ecosystem to a single, stable channel for navigation. Side channels were closed off by dams of wood pilings, rock and brush, wing dams were built to concentrate the flow, river bends were hardened with revetments, and large

woody debris was regularly removed from the main channel.

At the same time, river-bottom lands were "reclaimed" by farmers, eliminating wetlands, swales, oxbow lakes and old side channels. When combined with urban and suburban growth along the river, the cumulative result was to reduce total channel length by 40-50% and to cut off the river from much of its floodplain. With

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The role of River Network is to keep alive the vision of floodplain restoration as one tangible thing that we can do to prepare for the next big flood, and at the same time to help fish and wildlife, water quality and water supply.

Restoring the Floodplain of Oregon's Willamette River

the loss of so much of the "land-water interface," the richness of habitat for fish and wildlife was lost. The great hardwood forest of cottonwood, maple, ash, alder and willow, formerly ranging from one to six miles wide, was reduced to a thin veneer of woods separating a single wide river channel from riverside farms. A multitude of sand and gravel sites chewed up riparian lands and gravel bars.

Beginning in the 1940s, the Corps of Engineers built 13 dams on Willamette River tributaries to control floods. The result was to lessen the regular pulse of flooding on the Willamette that creates and enriches habitat within the floodplain. At the same time, because the dams control only 27% of the basin, they cannot prevent a catastrophic flood.

In 1995, River Network began its Willamette Floodplain Restora-

tion Project, with the goal of restoring 50,000 acres of the original floodplain forest and as many old river channels and water features as practical. Our goal was to restore the river ecosystem that provides habitat for endangered fish and wildlife, as well as open space and recreation for people. But we also saw floodplain restoration as a way to reduce the risk of catastrophic flood damage to our communities.

With support from the Portland District of the Corps of Engineers, and with funding from several foundations, we hired the engineering firm of Phil Williams & Associates to look at the flood threat on the Willamette River. In a year-long study, the firm concluded that Willamette Basin dams could not control a 100-year flood, and that the best way to prevent flood damage was to restore the native floodplain of the Willamette River, providing floodplain storage for floodwaters. The

report found that restoration of 50,000 acres of floodplain could substantially lower the crest elevation of a 100-year flood event in cities like Portland.

Such a catastrophic flood happened in February of 1996, the very same week that River Network released the Phil Williams study. It destroyed homes, businesses, bridges and roads throughout the Willamette Valley. The flood reminded people that the floodplain is part of the river and that we use it at our peril.

In the aftermath of the flood, there was no hue and cry for new

The 1996 flood reminded people that the floodplain is part of the river and that we use it at our peril.

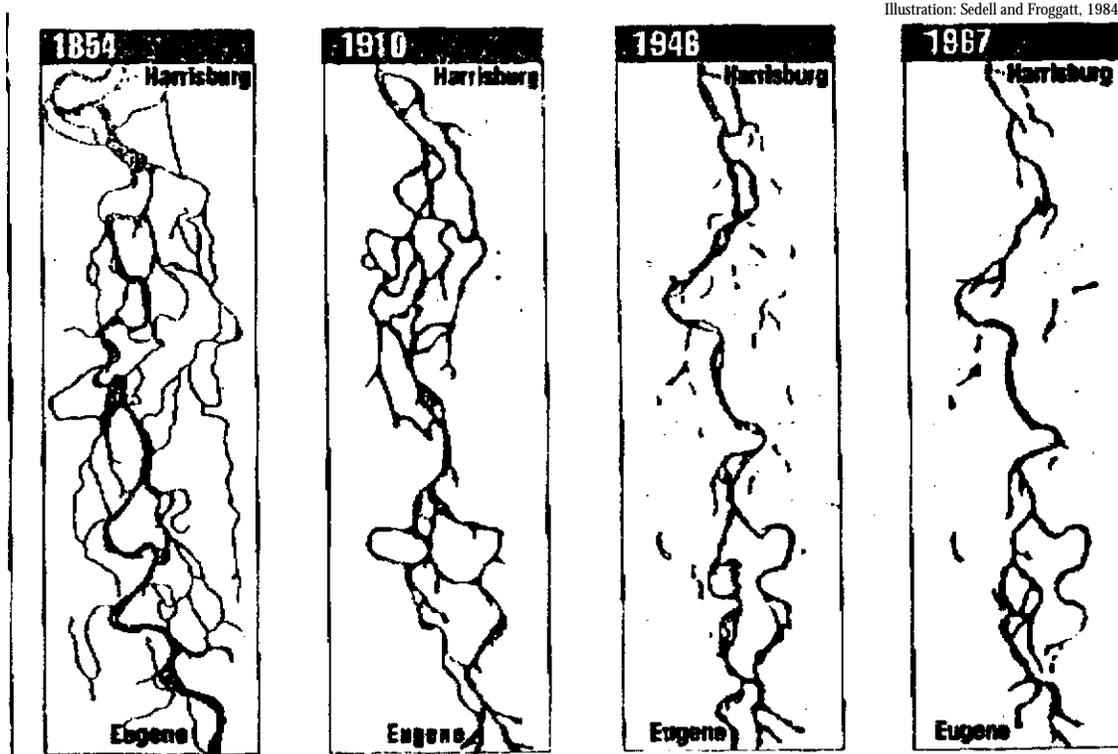


Illustration: Sedell and Froggatt, 1984

Over the last century, the Willamette's once complex braid of oxbows, channels and wetlands has been significantly simplified. As a result the Willamette has lost much of its natural capacity to absorb flood waters.

dams. There was a widespread acknowledgment that we need to get out of the river's way and give it room to flood. With support from the Corps, Congress mandated that agency to conduct a study of "nonstructural flood control, Willamette River, Oregon, including floodplain and ecosystem restoration." Other federal agencies such as FEMA and the Natural Resources Conservation Service also directed their actions toward floodplain restoration.

Eighteen months after the "Great Flood of '96," the public is losing the "flood awareness" that ran so high a year ago. The role of River Network is to keep alive the vision of floodplain restoration as one tangible thing that we can do to prepare for the next big flood, and at the same time to help fish and wildlife, water quality and water supply. More than that, our mission is to make the vision real by making it happen. We believe that there are thousands of acres of land, presently farmed or excavated or paved, whose highest and best use is to be part of the river floodplain. These are flood-prone lands, farmland with hydric soils, played-out sand and gravel pits, lands interlaced with former river channels. These lands need to be acquired by the public and restored to their former ecological richness. This will involve, not only revegetation, but removal of structural barriers to floodplain hydrology. The river must be given room to roam.

River Network is now identifying demonstration sites where we can begin this work. We place great hope in working with strong partners: the Corps of Engineers; the sand and gravel industry; cities like Corvallis, Salem, Eugene and Portland; utilities like Portland General Electric; state agencies like Oregon Department of Fish and Wildlife; federal agencies like the Natural Resources Conservation Service; private organizations like Oregon Trout, Willametter Riverkeeper and Ducks Unlimited. They all have an interest in the re-greening of the Willamette. They all have resources and skills that they can contribute to floodplain restoration.

The winners will be the general public: everyone who drinks water, everyone who fishes or swims, everyone who bears the tax burden of flood relief, and everyone who feels the magic of a great, rich river. ➤

Phil Wallin is the founder and president of River Network.



Lessons we have learned:

- ◆ Perform a credible study.
- ◆ Map the lands and their ownership.
- ◆ Communicate with landowners.
- ◆ Find a solid demonstration project.
- ◆ Work with the media.
- ◆ Emphasize "people" issues.
- ◆ Gather a good advisory council.
- ◆ Build a working relationship with agencies and municipalities.
- ◆ Produce a good basic brochure.
- ◆ Define a solution and stick to it.
- ◆ Keep a 20-year perspective.

The winners will be the general public: everyone who drinks water, everyone who fishes or swims, everyone who bears the tax burden of flood relief, and everyone who feels the magic of a great, rich river.

ORGANIZATIONS

Floodplain Management Resource Center

A referral service and library for floodplain management publications, located at the Natural Hazards Research and Applications Information Center. The Center's major goal is to increase communication among hazard/disaster researchers and those individuals, agencies and organizations who are actively working to reduce disaster damage and suffering. The Center carries out its mission in four principal areas: information dissemination, an

annual workshop, research and library services. Check out the Center's information-packed web site at <http://www.colorado.edu/hazards/> Natural Hazards Center
 Campus Box 482
 University of Colorado
 Boulder, CO 80309-0482
 (303) 492-6818
hazctr@colorado.edu

Association of State Floodplain Managers and the Federal Interagency Floodplain Management Task Force, 1996. Available from ASFPM at (608) 274-0123 or asfpm@execpc.com.

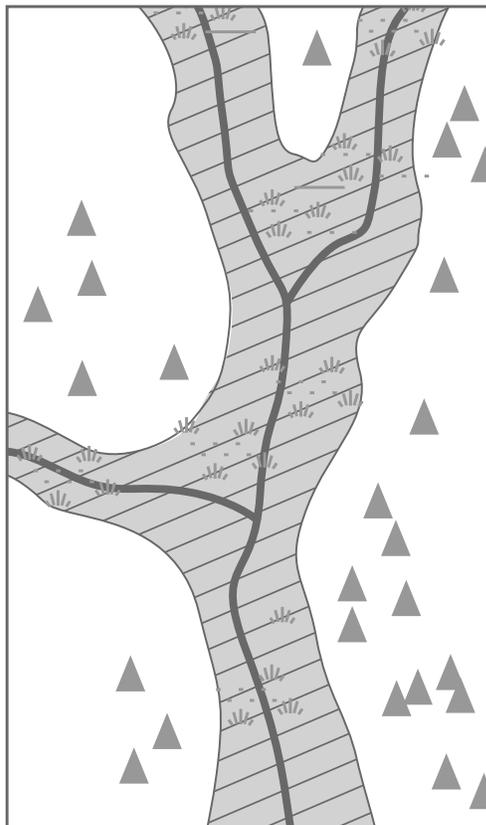
"Coping with the Flood: The Next Phase." *Water Resources Update*, Issue Number 94 & 95, edited by Gilbert White and Mary Fran Myers. Contact: Universities Council on Water Resources 4543 Faner Hall
 Southern Illinois Univ. at Carbondale
 Carbondale, IL 62901
 (618) 536-7571

PUBLICATIONS

Addressing Your Community's Flood Problems: A Guide for Elected Officials.

EFFECTS OF URBANIZATION ON FLOODPLAINS

Natural Floodplain



Urbanized Floodplain



When most of a watershed is forested and natural wetlands border the river and tributaries, the "100-year-floodplain" is generally narrow. When urban development sprawls across the region, the "100-year-floodplain" generally expands in size.



references & resources

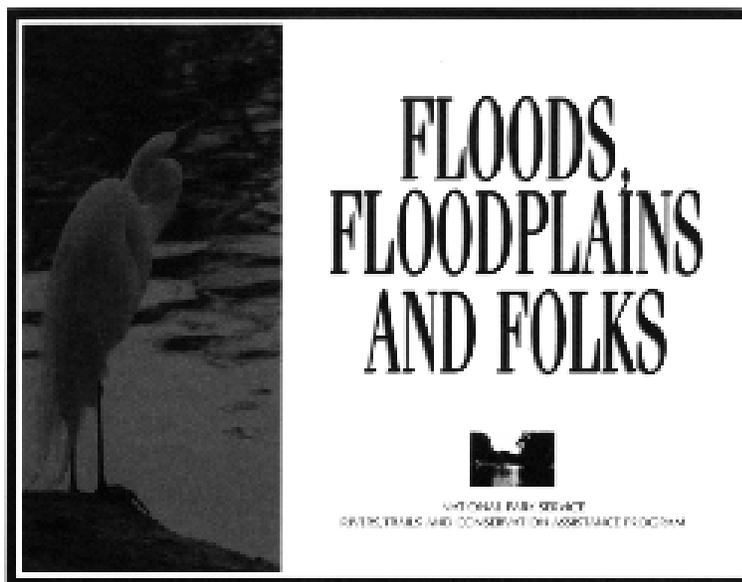
Dams and Rivers: Primer on the Downstream Effects of Dams by Michael Collier, Robert H. Webb and John C. Schmidt. U.S. Geological Survey Circular 1126, June 1996. Explores the emerging scientific arena of change in rivers below dams, including an introduction, a feature on a free-flowing river, followed by six regulated rivers each highlighting a particular use of a dam or downstream effect. Free from: U.S.G.S. Branch of Information Services Box 25286 Denver, CO 80225

Floodplain Management: Ecologic and Economic Perspectives by Nancy Philippi, 1996. Available for \$70 from Academic Press at (800) 321-5068.

Floods, Floodplains and Folks by the National Park Service's Rivers, Trails and Conservation Assistance Program (1996). Includes 20 case studies (many of which are urban) of multiple-objective river management, as well as project contacts and references. Available free from the National Park Service, (202) 343-3780.

Mississippi Monitor, The Newspaper Dedicated to the Mississippi River, published by American Rivers and the Minnesota-Wisconsin Boundary Area Commission to inform the public about events and issues affecting the Mississippi River. Available free, contact: American Rivers 1025 Vermont Ave., Suite 720 Washington, D.C., 20005 (202) 547-6900 amrivers@igc.apc.org http://www.amrivers.org

Multiple-Objective Management Resource Directory, a computer program listing more than 300 government and private



programs. Prepared jointly by the Federal Emergency Management Agency and the National Park Service. Available free from: NPS-RTCA PO Box 25287 INFA-RM-S Denver, CO 80225-0287 (303) 969-2781

On Borrowed Land: Public Policies for Floodplains by Scott Faber. A summary of the Lincoln Institute for Land Policy's conference "Community Land Policy and River Flooding: The Great Flood of 1993." It includes excellent explanations and graphics of causes of floods, land uses and river floods, floodplain semantics, promoting local responsibility, developing regional strategies, changing role for structural flood control, new expectations for intergovernmental relations, and more. 32 pages. Available for \$14 from: LILP 113 Brattle Street Cambridge, MA 02138-3400 (800) LAND-USE, lincolnpubs@lincolninst.edu, or American Rivers at (800) 296-6900.

The Real Choices Report: The Failure of America's Flood Control Policies by Scott Faber, (1995). Available from American Rivers (see above).

Sharing the Challenge: Floodplain Management into the 21st Century (The Galloway Report) by the Interagency Floodplain Management Review Committee, June 1994. Copies available from American Rivers (see above).

Using Multi-Objective Management to Reduce Flood Losses in Your Watershed, prepared by the Association of State Floodplain Managers for the U.S. Environmental Protection Agency, 1996. A good explanation of a proven approach, coordinating flood loss reduction with other community needs and goals to develop a stronger, more comprehensive program. Includes numerous other references and resources. Available for \$14 from Association of State Floodplain Managers at (608) 274-0123 or asfpm@execpc.com

Don't miss these great sources of information produced especially for you

River Network Publications

River Voices

Missing some back issues?

Back issues still in print, 16-24 pgs. First back issue: \$3 for River Network Partners, others \$6. All additional issues with same order: \$1 each. Additional subscriptions for Partner's board members are available at a discounted price of \$10 each. Annual subscription: \$35.

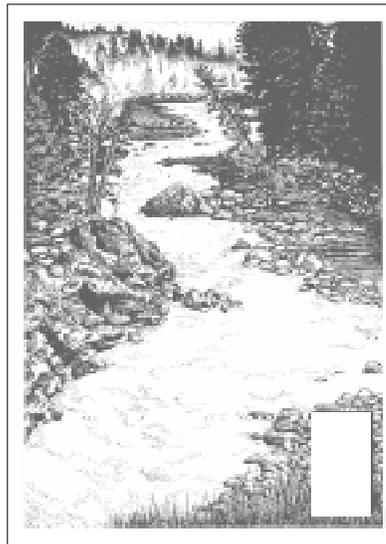
- Strategic Planning (97)
- From Corridors to Watersheds (97)
- Drinking Water Source Protection (96)
- Getting Your Message Across (96)
- Developing Your Message (96)
- Watershed Approaches (95)
- Communication Tools (95)
- Economics as a Tool (95)
- Dam Removals (95)
- Working with the Media (94)
- Watershed Management (94)
- Board Development (reprint) (94)
- Floodplain Management (94)
- 1993 National Survey Results (free) (93)
- Public Trust Doctrine (reprint) (93)
- Water Efficiency (reprint) (93)
- "Wise Use" movement (reprint) (92)

Starting Up

A Handbook for New River and Watershed Organizations

This handbook provides information about how to run a successful organization. Based upon the invaluable experience of dozens of leaders in the river and conservation movements, its articles lay out the critical moves every newly forming organization needs to make to thrive and grow - including: choosing a name, developing your mission statement, recruiting your board of directors, fundraising, working with volunteers, working with the media, producing a newsletter, pages of river-related examples and much more!

Additionally, it provides you with specific concepts and tools for building a strong and healthy river organization with a specific focus on the watershed approach to river conservation. 1996, over 350 pgs. River Network Partners \$10, others \$25.



River Fundraising Alert

The *River Fundraising Alert* is a quarterly publication designed to help river and watershed organizations support themselves financially. River Network Partners receive the *Alerts* as a Partnership benefit.

4-8 pgs. First back issue: \$3 for River Network Partners, others \$6. All additional issues with same order: \$1 each. Additional subscriptions for Partner's Board members are available at a discounted price of \$10 each. Annual subscription: \$35.

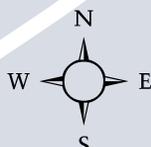
- Bequests (97)
- Workplace Fundraising (97)
- Special Appeals (96)
- Fundraising Planning (96)
- Business Memberships, Part 2 (96)
- Business Memberships, Part 1 (96)
- Special Events (95)
- Major Donors, Part 2 (95)
- Major Donors, Part 1 (95)
- Retaining Members (94)
- Acquiring Membership (94)
- Board Fundraising (94)

By joining the River Network Partnership, we can help you navigate your river work



Since 1988 River Network has helped hundreds of river and watershed conservationists. Our vision is to have vigilant and effective citizen watershed organizations in each of America's 2,000 major watersheds. Helping river and watershed organizations through the Partnership is one strategy for making our vision a reality. Let us give you the tools you need to be effective in your watershed.

Here's some feedback from River Network Partners:

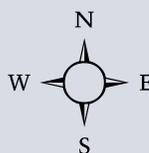


"I could not have founded this organization without the technical assistance and wonderful encouragement I have received from River Network."

Nancy Jacques
Colorado Rivers Alliance

"Everything we have received from River Network—the Fundraising Alert, the special publications—have been extremely helpful, providing the kind of practical information we badly need and can put to use."

Kevin Bixby, SW
Environmental Center, NM



"River Network has saved me endless hours of research time."

Fred Miller, Nine Mile
Creek Conservation
Council, NY

"Having River Network available for advice and information on fundraising and other issues has made my job easier."

Sally Bethea, Upper
Chattahoochee Riverkeeper,
GA

Partnership Dues

Joining the River Network Partnership is one of the best investments you can make in protecting your river and its watershed. You'll receive valuable publications (a \$122 value), plus one-on-one advice and the opportunity to network with hundreds of like-minded river and watershed conservationists from across the country.



YES, we would like to be a River Network Partner

Citizen led, river and watershed conservation organizations are invited to join as River Network Partners. Dues is based on your organization's annual budget:*

<u>Budget</u>	<u>Dues</u>	Budget:
\$0 - \$20,000	\$60	\$ _____
\$20,001 - \$100,000	\$100	Amount dues enclosed
\$100,001 - \$200,000	\$200	\$ _____
\$200,001 +	\$300	

*Individuals and government agencies are invited to join as River Network Members. For more information on membership categories and benefits, contact River Network.

NAME _____ EMAIL _____

ORGANIZATION _____

ADDRESS _____

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For more information contact: River Network, P.O. Box 8787, Portland, OR 97207-8787 (503) 241-3506 rivernet@jgc.apc.org



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Thanks for your commitment to America's rivers

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Sacramento River Preservation Trust, CA
River Fields Inc, KY
Neponset River Watershed Association, MA
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Cape Fear River Assembly, NC
Sandy River Basin Watershed Council, OR
Friends of the Reedy River, SC
Save the Duck Committee, TN
Bayou Preservation Association, TX
Audubon Society - Central Basin, WA

RENEWED PARTNERS

Massachusetts Riverways Programs, MA
Arrowhead Foundation Inc, MO
Save Our Rivers, Inc., NC
Pequannock River Coalition, NJ
Greenway Conservancy for the Hudson River Valley, NY
Mill Creek Watershed Council (MCWC), OH
Delaware River Greenway Partnership Program, PA
Tennessee Scenic Rivers Association, TN
Battenkill Conservancy Inc., VT
Rock River Coalition, WI
Sierra Club - Mississippi River Basin, WI
Trout Unlimited - Kiap TU Wish Chapter, WI

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Arkansas Department of Parks & Tourism, AR
Guadalupe-Coyote Resource Conservation District, CA
South Platte River Commission, CO
Southwestern Illinois Resource Conservation & Development, IL
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Public Works Commission, NC
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