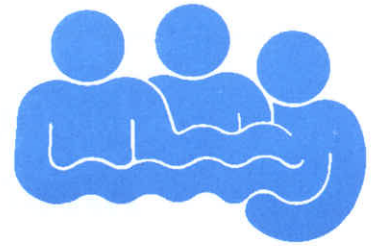


River Voices



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Beyond the Ark A New Approach to U.S. Floodplain Management

by Jon Kusler and Larry Larson

Floodplains occupy a significant portion of the United States. About 7 percent, or 178 million acres, of all U.S. land is floodplain, and of course, the percentages are much higher along the coasts and major rivers, where most of the larger cities are located [1]. Floodplains are lands subject to periodic inundation by hurricanes, storm tides, heavy rains, and spring snow melt. They are the lowlands adjoining the channels of rivers, streams, and other watercourses and the shorelines of oceans, lakes and other bodies of water.

Floodplains are shaped by water-related, dynamic physical and biological processes and include many of the nations most beautiful landscapes, most productive wetlands, and most fertile soils. They are home to many rare and endangered plants and animals, as well as sites of archaeological and historical significance. In their natural state, floodplains have substantial value. These complex, dynamic systems contribute to the physical and biological support of water resources, living resources, and cultural resources. They provide natural flood and erosion control, help maintain high water quality, and contribute to sustaining groundwater supplies. Therefore, proper management of floodplains is important to preserve their value and to reduce losses caused by flooding.

The United States is now at a pivotal point in floodplain management. A national status report on floodplain management was released last year by the Federal Interagency Floodplain Management Task Force, and federal agencies responsible for reducing the losses caused by floods are about to begin deliberations on future directions in floodplain management. At the same time, the Clinton administration and Congress wish to reduce spending in light of the \$4-trillion national debt. Also, little money is available at the state and local levels

for flood-loss reduction measures and disaster relief.

Substantial progress has been made in the last 25 years in U.S. floodplain management. This progress is especially evident in the increased public awareness of flood hazards and the ability of humans to predict potential flooding and to influence risk exposure. But floodplain management in the United States has gone about as far as it can go with its existing approaches. Prime dam sites have been exploited; major floodplains have been mapped; and minimal floodplain regulations have been adopted by more than 18,200 communities [2]. Increased funding for existing approaches is not the answer to many of the remaining problems. Instead, a fundamental change is needed. The focus of floodplain management must change from consideration of property losses alone to consideration of the many purposes of floodplains. Management should be extended to smaller rivers and streams tailored to watershed conditions. Broad-brush approaches to mapping and regulation that reflect only flood elevations should be replaced, in many contexts, by

(Beyond the Ark continued on p 3)

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(below) Last summer, volunteers across the Midwest worked on emergency sandbagging crews. Photo by U.S. Army Corps of Engineers.



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River Voices is a forum for information exchange among grassroots, regional and state river groups across the country. River Network welcomes your comments and suggestions.

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River Network is a national non-profit organization dedicated to helping people protect rivers. We support river conservationists in America at the grassroots, state and regional levels; help them build effective organizations; and link them together in a national movement to protect and restore America's rivers and watersheds.

River Network has four programs: the **River Clearinghouse** provides river activists with information and referrals on technical river resource and non-profit organizational issues; the **River Leadership Program** develops new leadership and strengthens existing state and regional river advocacy organizations, and provides a link for local and state groups on national legislation; the **River Wealth Program** builds the capacity of river organizations to support themselves financially; the **Riverlands Conservancy** brings critical riverlands into public ownership, thereby empowering the public to oversee management and protection.

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(Beyond the Ark continued from p 1)

approaches that also reflect water velocity, sediment regimes, and the changes in runoff that are caused by watershed development. Multiobjective mitigation plans and implementation strategies involving landowners, citizen groups, and local governments should not only improve guidance for future development of floodplain areas but also address the restoration of stream, wetland, and riparian zones. A recent report by the National Academy of Sciences calls for the restoration of 400,000 miles of rivers and streams [3]. It notes that, of the nation's total mileage of rivers and streams, only 2 percent are high-quality, free-flowing segments [4].

There are many examples of such multiobjective protection and restoration efforts [5]. They have been variously called "greenway," "multiobjective river corridor management," and "environmental corridor management" programs [6]. More than 500 communities have implemented such programs for some or all of their rivers and streams. These programs have been characterized by innovative, problem-solving approaches and broad public involvement.

A number of federal programs encourage such efforts, including the National Park Service's Rivers and Trails Program, the Army Corps of Engineer's floodplain management program, the Tennessee Valley Authority's floodplain management program, and the Federal Emergency Management Agency's community rating system. Some state floodplain, river, wetland, and open space programs also encourage such efforts. The California Urban Stream Restoration Program has been particularly successful in encouraging low-cost community stream restoration efforts with broad public involvement through technical assistance and small grants-in-aid to communities. Other examples include the Missouri stream restoration program, the Massachusetts greenway program, and the Maryland greenway program. Despite the success of such projects, no coordinated national legislation, policy, or program exists to support such efforts [7].

At one time, structural changes -- such as dams, levees, and channel alterations, and shoreline protection -- were the primary approach for addressing flood losses. Although such structural approaches have reduced flood losses, they often do so at great cost and with great environmental impact. Since 1968, considerable progress has been made in implementing nonstructural loss-reduction measures, such as regulations, warning systems, and evacuation plans. Of the 22,000 flood-prone communities in the United States, more than 18,200 or 82 percent, have

adopted floodplain management regulations and participate in the National Flood Insurance Program (NFIP). More than 2.6 million flood insurance policies are presently in force through this program. The Federal Emergency Management Agency (FEMA) has mapped 18,492 communities, and 2,463 restudies have been completed or are in progress [8].

Despite these efforts, flood losses continue to increase. Per-capita damages have increased despite measures to reduce such losses,

A fundamental change in U.S. floodplain management is needed, from consideration of property losses alone to consideration of the many purposes of floodplains, watershed conditions and restoration.

although the rate of increase has slowed. A 1987 study for FEMA estimated that 9.6 million households in 17,466 communities with a total of \$390 billion in property value were at risk from flooding. From 1916 to 1985, flood-related deaths averaged 104.4 per year. Per-capita flood-related deaths have decreased, but per-capita flood losses were 2.5 times as great from 1951 to 1985 as from 1916 through 1950, after adjustment for inflation [9].

Gaps in Current Programs

Structural and nonstructural efforts to reduce losses have been at least moderately effective in addressing certain situations, but they were not designed to address other situations and do not do so. Several major gaps in existing programs must be addressed. First, despite the expenditure of \$873 million for federal mapping of floodplains, approximately 100 million acres, or one-half of the nation's floodplains, have been mapped [10]. Unmapped floodplains generally are not subject to regulatory standards by communities or states. Much of the land not subject to management lies along smaller rivers and creeks or along smaller lakes.

In addition, more than 31 percent of flood insurance claims were paid for flood damage outside the mapped "100-year" floodplain [11]. This means that development in these areas is covered by federal insurance but is not subject to regulations to guide new development. To remedy this problem, watershed planning and multiobjective river corridor management for these smaller streams and rivers are needed. This is where development is currently unregulated for flood-hazard reduction purposes and

(Beyond the Ark continued on p 12)

The Great Flood of 1993: *Summary, Analysis, and New Directions*

by Scott Faber, *American Rivers*

As the images of the Great Flood of 1993 recede, both physically and mentally, its wake is filled with doubts about flood control and floodplain management. Our multi-billion dollar investment in flood control was obviously no match for the force of the mighty Mississippi and Missouri rivers. But did our reliance on structural solutions like levees actually make matters worse?

Extent of Damage

The damage to property, at more than \$15 billion, has stretched the limits of federal and state resources. Congress has already committed to spending \$6 billion. Officials with the Department of Agriculture say perhaps 400,000 acres will remain covered with sand. More than 70,000 people were left homeless; many remain in trailers or temporary housing. Fifty people were killed. In all, 15,000 square miles were inundated, with some 55,000 homes damaged or destroyed and 30,000 jobs disrupted. Superfund sites were flooded, with certain effects, and huge pulses of farm chemicals and raw sewage were flushed into the river.

Even so, the Great Flood was not a record flood. At its height, more than 1 million cubic feet of water rushed by the gateway arch in St. Louis each second, the equivalent of a 120-year event. Was the Great Flood of 1993 an act of nature? The conventional wisdom tells us that the flood was the product of a wet winter and a persistent weather pattern. But to answer when the flood really began, you have to go back to the early 1800's, when the first settlers began to build levees and drain prairie potholes.

Policies Leading to Disaster

Flood control in the Midwest, like flood control nationally, has for more than a century fallen victim to the tyranny of small decisions. The decision to build a levee or drain a wetland is made in isolation, with no consideration on its effect on the hydrology of the entire

watershed. Instead of allowing the river to spread out and take advantage of the natural flood control functions of floodplains, we have spent billions of dollars to force the river into ever tighter channels, increasing flood heights and creating a false sense of security that has encouraged floodplain development.

Several studies have shown that levees, by confining the water to the channel and preventing it from spreading over the floodplain, increase flood heights. A study by Dr. Charles Belt of the 1973 flood on the Mississippi attributed higher flood stages to

Flood control in the Midwest, like flood control nationally, has for more than a century fallen victim to the tyranny of small decisions.

a combination of levees and navigation projects like wing dikes and revetments. The study found that the 1973 flood had the same volume as the 1908 flood but that the flood peak for the 1973 flood was 8 feet higher. A study by the U.S. Army Corps of Engineers indicates that the record 1844 flood would now crest about 10 feet higher at Boonville, Missouri and 12 feet higher at Herman, Missouri. Other studies show that a watershed that retains a large portion of its wetlands, which act as natural sponges, has lower flood peaks. Now, a study funded and published by the *St. Louis Post Dispatch* came to the same conclusions when examining the Great Flood.

Before settlement, the Mississippi eroded its bottom and banks during flood peaks, making room for floodwaters by increasing the storage capacity of the channel and by using the floodplain as a natural reservoir. By the time the Great Flood arrived, the channel had lost about one-third of its volume, and the floodplain had been replaced by farms and cut off from the river by a canyon of sand and gravel.

These levees, dams and dikes can only provide a limited level of protection. A large percentage of private or locally built levees provide an even lower level of protection, as many are poorly designed or maintained. Over time, a levee's history — and its protective limitations — are easily forgotten. No single

agency understands how these levees act in concert.

Even so, floodplain residents often believe they are protected from floods and do not feel they need to take proper precautions. Development may continue or accelerate based on expected flood protection. Per capita losses associated with flooding nationally have more than doubled since World War II in spite of a \$25 billion investment in structural flood control. So why do we continue to invest in flood control? One reason is that no single piece of legislation or other authority outlines a comprehensive set of measurable goals and objectives for the management of flood-prone areas. At the federal level, there are at least 25 subdivisions of 12 departments and agencies that have some small piece of the nation's flood control puzzle. At the same time, states administer locally adopted and enforced land-use regulations, and local government oversee local drainage and stormwater management.

A series of laws, executive orders and directives, administrative regulations, inter-agency actions and agency policies and programs attempt to thread together all of these flood control efforts. But there is no lead agency. The Federal Emergency Management Agency chairs a voluntary interagency task force that reviews the web of programs, policies and regulations but has no authority to make changes. Inconsistencies of purpose, overlaps, gaps, and conflicts persist. Now, the White House has established a task force to examine many of the same issues.

The ultimate result is that our flood control policies, by increasing flood heights and failing to direct development from harm's way, needlessly put people and property at risk. Instead of reducing incentives to development near the water's edge, the federal flood insurance program has acted as a financial safety net that encourages floodplain development. When the federal government offered the carrot of subsidized flood insurance in flood hazard areas, officials hoped local communities would respond with the stick — tough restrictions on floodplain development. Instead, the number of dwellings in the floodplain has increased each year since the program was initiated in 1968.

Most provisions of federal, state and local tax codes are designed to encourage development without regard to whether it might occur in flood-prone areas, while

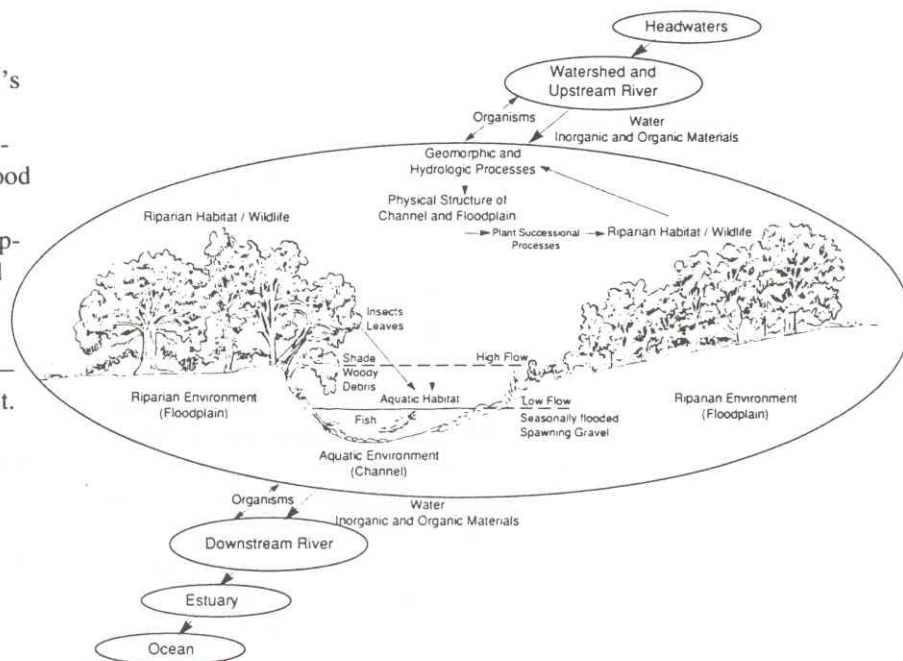
relatively few provisions provide incentives to leave land in its natural state. Some jurisdictions offer tax-based incentives that make locating businesses, homes and other development in some flood-prone areas financially feasible and even attractive. After limited federal and state education efforts, it is clear that many local officials and property owners still do not thoroughly understand concepts of probability, cumulative impacts, off-site impacts, and functional values — all of which are important for successful floodplain management. It is also clear that little of the material that has been generated and released adequately integrates the flood loss reduction and natural resources protection aspects of floodplain management.

New Directions

The potential for change has never been greater. Many agencies have shown a willingness to embrace the policy direction of the Clinton Administration, which has strongly supported the use of non-structural alternatives. The Federal Emergency Management Agency is helping to move dozens perhaps hundreds of town's from harm's way. The Soil Conservation Service is working with groups like the Iowa Natural Heritage Foundation and the Nature Conservancy to acquire and retire entire levee districts. The US Fish and Wildlife Service has aggressively pushed for non-structural ideas, including a refuge system for

(Great Flood continued on p 16)

(below) Model of a River Ecosystem. Sound floodplain management addresses the cumulative impacts of activities throughout the watershed.



National Flood Insurance Program

A Critical River Protection Tool in Need of Reform

by David Conrad,
National Wildlife Federation

Most Americans don't give much thought to flood insurance, unless they live in the floodplain near a river or next to the beach. The disastrous impacts of the federal government's flood insurance program, however, are worth noting. Over its 25-year history, the flood insurance program has promoted risky development too close to the water's edge, led to the degradation of aquatic resources and drained the pockets of American taxpayers creating one of the nation's largest domestic liabilities. It was supposed to do just the opposite.

For the past five years, Congress has labored to develop the first comprehensive reform legislation for the National Flood Insurance Program (NFIP) in more than twenty years. Circumstances are shaping up for possible breakthrough and enactment of reforms that have been stymied by real estate and homebuilding interests for at least the past three years.

How Does the NFIP Work?

The NFIP was established by Congress in 1968. It was the first major "non-structural" approach to the controlling flood-related losses. The basic purpose of the program was to have the government provide otherwise unavailable flood insurance for residents and businesses located in the floodprone areas, in exchange for communities' plans "to guide" new development "away from locations which are threatened by flood hazards." In order to participate in the NFIP and thus allow federal flood insurance to be made available to residents, communities must meet certain basic requirements. These include requiring that all newly constructed living and working space be elevated above the 100-year flood elevation, and prohibiting new construction in "floodways" (the area needed to carry base floodwaters) that would increase flooding in adjacent areas by more than 1 foot, and other building codes. Community participation is voluntary, but today the vast majority of floodprone communities participate in the NFIP. Federal

insurance is mostly marketed through private insurance companies and agents.

Major Problems with the NFIP

One big problem is that the premiums charged through the NFIP do not cover the costs of maintaining the program. For example, properties that were built before flood insurance rate maps were completed (50% of the buildings covered under the NFIP) receive a federal rate subsidy of 66%. In addition, the premiums collected for NFIP are aimed at recovering only the costs of the "historic average loss year," rather than including reserve to cover years with catastrophic losses. As a result, during the 1980s Congress was forced to pump more than \$1 billion taxpayer dollars into the NFIP to make up for premium shortfalls, and in the wake of this summer's Midwest floods, the NFIP was operating at a \$75 million deficit -- with over \$240 billion of policies outstanding!

Noncompliance with the mandatory purchase requirement is also a huge problem. In 1973 Congress made flood insurance coverage mandatory for all property mortgaged by federal agency lenders (VA, FHA, etc.) and by private lenders that are backed by federal deposit insurance (most banks, savings and loans, etc.). Unfortunately, the 1973 law contained no penalty for failure by lenders to require insurance coverage. The Federal Emergency Management Agency (FEMA) estimates that on 14% of floodplain structures are actually insured. So how can building owners without flood insurance collect after a flood? Very easily. Since their community is participating the NFIP, they as members of community are eligible for federal and state disaster relief payments. Income tax casualty loss deductions also assist.

(Refer to graphic on p 7 for more.)

Bills to Reform the NFIP

In August and September 1993, Senator John Kerry (D-MA) and Rep. Joe Kennedy (D-MA) introduced similar bills (S. 1405 and H.R. 3191, respectively) in Congress to reform the NFIP. These bills are a product of more than a



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dozen hearings held by the House and Senate Banking Committees over five years, with the intent of revamping several key program aspects. Among the key provisions of the bills are:

- * Provisions to improve lender and property owner compliance with mandatory flood insurance purchase requirements.

- * Clarification that a purpose of the NFIP is to encourage all levels of government to protect the "natural and beneficial floodplain functions" that reduce flood losses and provide other environmental values.

- * Establishment of a grants program to mitigate risks of future flood and erosion (NFIP continued on p 11)

Protecting the Floodplains in Your Community

Tools and Techniques for Local River Activists

by Pete Lavigne and Rita Haberman

Although much attention is currently focused on national floodplain management policies and the need to reform them, the importance of actions at the local level are equally important to improving floodplain management and enforcement. Local river activists can play a vital role in the protection of floodplains.

Floodplain Terminology

As a first step, it is important to know and understand the terminology [1]. What is a "regulatory floodplain"? A "regulatory floodplain" is frequently defined by state or local regulations to include all land within reach of a "one-hundred year" flood, i.e., a flood with a probability of occurring in any given year of one percent. This standard has also been adopted by the National Flood Insurance Program which refers to this level of flooding as the "base flood."

Wetlands also play a significant role in reducing floods and flood damage, so it's important to know the definition of a "regulatory wetland." A "regulatory wetland" is defined by the U.S. Army Corps of Engineers under regulation adopted to implement Section 404 of the Federal Water Pollution Control Act of 1972 and the Clean Water Act of 1977 to include:

"... those areas that are included or saturated by surface or ground water at a frequency or duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

Similar definitions are frequently expressed in state and local regulations, which also may list indicator wetland plant species.

Floodplain Maps

In order to protect floodplains, you've got to know where they are. To obtain Federal Emergency Management Act (FEMA) floodplain maps for your community, contact your local planning department or regional FEMA office.

Under the National Flood Insurance Program (refer to p 6), FEMA is required to develop flood

risk data for use in both insurance rating and floodplain management. The FEMA has mapped over 18,000 of the 22,000 flood-prone communities throughout the United States. Restudies of over 2,400 communities have been completed or are in progress. Through Flood Insurance Studies (FIS), FEMA prepares a Flood Insurance Rate Map (FIRM) that depicts the Special Flood Hazard Areas (SFHA), areas within the "100-year floodplain."

Floodplain maps are sometimes inaccurate and often understate (and sometimes overstate) the actual flood and storm surge risks. Local activists can help to update the maps by providing independent hydrologic analyses and working with local and state authorities through existing procedures to update and improve the local maps.

Legal Measures for Protecting Floodplains

What are the basic regulatory techniques available to communities for managing and regulating their floodplains and wetlands [2]? Local and state programs utilize five types of legal measures:

Floodplain and wetland zoning specifies the location, usage, and density of new structures in regulated areas. Structures in existence when a zoning measure is adopted are normally protected as legal "non-conforming uses." Such structures may continue to be occupied and used for the same purposes, but they may not be expanded or changed to a new purpose. Special exceptions may be granted for structures related to agriculture, to water-dependent activities such as marinas, or to other facilities which must be located in regulated areas.

Building codes regulate the design, elevation, and construction materials of new structures. Generally, new structures must be elevated or flood-proofed to the one-hundred-year flood level. Building codes are generally administered on a state-wide basis.

Subdivision regulations control the process of subdividing a large parcel of land into smaller lots for resale. As a condition to approving a proposed subdivision, a local community may require the developer to refrain from building in

regulated areas and to install suitable drainage facilities. The subdivider may also be required to dedicate wetlands and floodplains for use as subdivision recreation areas.

Sanitary and well codes establish minimum standards for on-site waste disposal and water supply systems. They may prohibit such facilities in areas of high ground water and flood hazards.

Special watercourse, wetland, or floodplain encroachment statutes or ordinances are sometimes adopted by states or local governments to control wetlands and floodplains. Within these areas, any proposed structure, fill, dredging or other alteration must receive a permit from the appropriate public authority.

Educating Your Community and Public Officials

River Protection Groups and local activists can do a lot to educate local officials and property owners about the costs of the National Flood Insurance Program, its potential uses, and requirements under the law. Enforcement of the NFIP provisions often fails or slips by the wayside due to ignorance about program requirements and the budgetary costs and environmental consequences of unfettered development in floodplains. Key players in the enforcement system include: local Building Inspectors and Code Enforcement Officers; Banks and other mortgage lending institutions; Major Developers; and Community Planners, and Planning and Zoning Boards.

First, educate yourself. Use the references and articles in this issue of *River Voices*. FEMA and other agencies also have a number of publications available for the general public regarding various aspects of the Flood Insurance Program. The Massachusetts Flood Hazard Management Program in the Department of Environmental Management, for instance, distributes the Flood Insurance Rate maps, state building code regulations, sponsors workshops for local officials and provides information on the wise use of floodplains to discourage inappropriate structural development within them.

Building Inspectors. Talk with your local building inspectors and code enforcement officers to find out if they are aware of the program and up-to-date with its provisions. Offer information and/or a workshop on the environmental impacts of floodplain development and emphasize the savings in tax dollars which can result from good floodplain management.

Bank and Savings & Loan Lenders. Put together a pamphlet explaining the economic and environmental impacts of financing development in inappropriate areas including floodplains. Explain the NFIP requirements for active flood insurance policies for mortgage lending in designated floodplains and explain the fines the lending institution is liable for if they don't enforce the requirements. Explain how policies for the most dangerous flood-prone areas are heavily rate subsidized and how repetitive loss claims are a drain on the program and taxpayer dollars. Offer to do a workshop on all of these issues for the mortgage lending department. Ask them to conduct their own internal education and to sponsor your group's efforts to protect your river and its floodways and floodplains.

Local Community Planners. Help them with designing and implementing model floodplain bylaws, and educating the public and riverway property owners on flooding impacts and issues. Provide them with the latest in information and materials on changes in the regulations and state and federal law. Ask them to cosponsor public forums and workshops on floodplain issues and target the workshops to specific constituencies including Realtor groups, building trades associations and your local Chamber of Commerce.

Last, but not least: Publicize the public safety, economic, and environmental importance of floodplain protection and sensitive management. Op-ed articles in your local newspapers are wonderful tools along with articles in your newsletter. Ask the public and your membership to support Congressional action for reform of the National Flood Insurance Program and for an end to unwise taxpayer subsidies for floodplain development. Above all, write your Representatives and Senators in Congress and ask for tough action to change the NFIP and eliminate the waste of your tax dollars. Let them know of success stories where good floodplain management has protected the environment and saved lives and taxpayer dollars. Publicize pictures of areas that weren't so smart and were devastated by entirely predictable flooding. Keep track of and publicize their responses. Thank 'em when they are great and let 'em know when they're not.

Notes

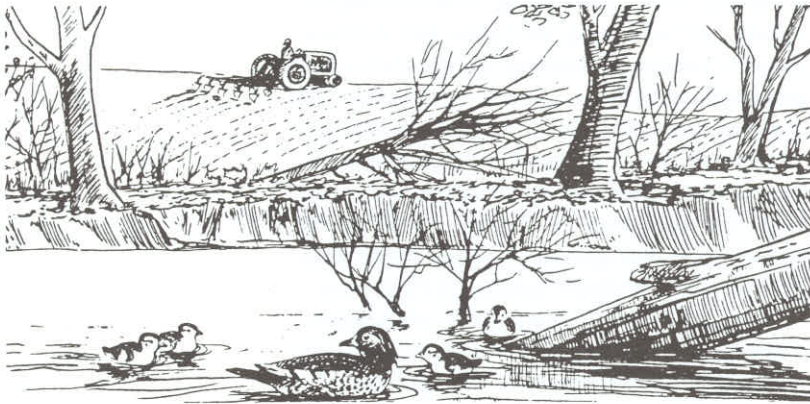
1. See Jon A. Kusler and Rutherford H. Platt, "Common Legal Questions Pertaining to the Use of Floodplains and Wetlands" prepared for The Association of Floodplain Managers.

2. Kusler and Platt, see note 1.

Acquisition and Restoration of Flooded Agricultural Land: *An Alternative Floodplain Management Strategy*

by Scott Faber, *American Rivers*

Six miles north of the confluence of the Iowa and Mississippi rivers, a dozen farmers are about to complete the agricultural equivalent of a moon shot. They will become the first landowners ever to retire an entire levee district, 3,000 acres of floodplain farmland that has for decades been seen as too rich and fertile to leave fallow.



The levee district had received federal repair funds 14 times in the last 60 years, costing the taxpayer more than \$3.5 million, when adjusted for inflation. The damage caused by the Great Flood of 1993 would have added another \$850,000 to the federal bill, if the levee were repaired.

Instead, the Iowa Natural Heritage Foundation and other environmental groups, working

River Network is working with the U.S. Army Corps of Engineers to acquire flooded farmland along the Missouri River. If you have suggestions or would like more information, call River Network, (503) 241-3506.

with the Soil Conservation Service (SCS), the U.S. Fish and Wildlife Service, the Federal Emergency Management Agency (FEMA), Iowa Department of Natural Resources, and the Environmental Wetlands Reserve Program and other sources to purchase the land from willing sellers and create a permanent wildlife refuge. The project, including restoration costs, is expected to total \$3.7 million.

Other levee districts have expressed interest in similar deals. SCS reports that more than 400,000 acres of farmland were so heavily damaged during the flood that it may not make financial sense to reclaim them. But federal funding for the acquisition of floodplain farmland — \$15 million — will only meet a fraction of the demand. To make the case for additional dollars, conservation groups are linking the flood storage values of floodplains and their associated wetlands with the goals of flood loss reduction and better floodplain management.

Several studies — not to mention common sense — suggest that the destruction of wetlands and other land management practices increase flood heights. In a watershed where lakes and wetlands are preserved, water is released at different rates and reaches the channel at different times. In contrast, a watershed engineered to move water off the land quickly through drains and channels will release water simultaneously, increasing flood crests. [1]

The most recent study, an August 1993 report prepared by the Illinois State Water Survey, once again confirmed that wetlands act as natural sponges, storing water and releasing it over time. The study's authors found for every 1 percent increase in the area of watershed's wetlands, a flood's peak flow in the streams that drain that watershed is reduced by an average of 3.7 percent. [2] One researcher studying the affect of wetlands losses on streamflows in Wisconsin found that flood peaks might be as much as 80 percent lower in basins with significant lake and wetland area. [3] Consider then what might have happened if more than 20 million acres of wetlands had not been eliminated from the drainage basins of the Mississippi and Missouri river north of St. Louis since the late 1700s. Illinois, Iowa and Missouri — the states which suffered the most damage this summer — have lost 85 percent or more of their wetlands. [4]

Wetlands losses are not solely to blame. The straight-jacketing effect of levees, increased flows from mainstem and tributary channelization, and poor land-use practices

have all reduced the storage capacity of river channels.

As the floodwaters recede, however, new ideas about flood control and floodplain management have emerged. The Clinton Administration ordered the Corps of Engineers and other federal agencies to consider the use of non-structural alternatives like wetlands restoration before rebuilding levees. Congress passed legislation increasing funds for relocation from flood-prone areas from \$24 million to \$110 million, allowing as many as 200 towns to move from harm's way.

But solutions for farmers remain insufficient, because of lack of funds for the Emergency Wetlands Reserve Program and tight rules for the Wetlands Reserve Program, the annual program. Advocates for farming interests in Washington have been reluctant to push for solutions that take land out of produc-

tion, and have instead put pressure on federal decision-makers to rebuild all levees with federal funds.

Notes

1. For a comprehensive analysis of federal wetlands law, see generally Margaret N. Strand, *Federal Wetlands Law*, 23 EL 10185 (June 1993). See also The Conservation Foundation, *Protecting America's Wetlands: An Action Agenda*, the final Report of National Wetlands Policy Forum (1988). See U.S. GAO Pub. No. GAO/RECD-92-79FS, *Wetlands Overview: Federal and State Policies, Legislation and Programs* (1991) and U.S. GAO Pub. No. GAO/RCED-88-110, *Wetlands: The Corps of Engineers' Administration of the Section 404 Program* (1988).

2. Misganaw Demisse and Abdul Khan, *Influence of Wetlands on Streamflow in Illinois*, Illinois State Water Survey for the Illinois Department of conservation, at 49 (1993)

3. R.P. Novitski, *Hydrology of Wisconsin's Wetlands*, U.S. Geological Survey, Madison, Wisconsin (1982).

4. Thomas E. Dahl, *Wetland Losses in the United States 1780s to 1980*, Department of Interior, U.S. Fish and Wildlife Service, at 21, (1990).

(NFIP continued from p 7)

damages. The bills would authorize \$20 million in grants each year to state and local governments to assist communities in relocating, floodproofing, elevating and buying-out of buildings to help reduce future flood risks. According to the Federal Insurance Administration, repeat claims (2% of all NFIP policies) account for 52% of the claims paid and 47% of the dollars paid out of the fund.

* Prohibition on the availability of federal flood insurance for new construction in eroding coastal areas. The "safety net" role that the NFIP has provided for development on dangerously erodible coastlines along the Great Lakes and oceans will be discontinued. This will substantially reduce the risk of catastrophic flood damages, as well as reduce pressure to build in these risky areas.

* Permanent authorization of a "Community Rating System" providing premium rate incentives to communities that take additional measures beyond the NFIP minimum requirements to reduce the risk of flood or erosion-related damage.

Prospects for NFIP Reform in 1994

Currently, flood insurance reform insurance is held up, especially in the U.S. Senate, by real estate, homebuilding, and beachfront property-owner lobbies and their Congressional allies. In particular, Senator Alfonse D'Amato (R-NY), who serves as highest ranking Republican on the Senate Banking Committee has delayed progress on reform legislation for nearly two

years. Senator D'Amato has especially fought the prohibition of insurance in eroding coastal areas because property groups along posh Fire Island, NY have been receiving flood insurance for expensive vacation homes at \$450 per year which FEMA estimates is actuarially-speaking worth as much as \$18,000 per year.

Last fall, the House Banking Committee readied its reform bill for consideration by the full House of Representatives soon after Congress reconvenes in February 1994. Recognizing the growing public concern over the fiscal soundness of the Flood Insurance Fund, the continuing need for "buyout" assistance in the wake of Midwest flooding, and an ever-growing awareness that substantial program reforms are needed, particularly where subsidies are fueling risky development, perhaps this year both the Congress and Senate will finally serve to overcome the real estate industry's delaying tactics. This scenario is, however, in no way assured.

What You Can Do

* Call or write your senator and representative. Tell them to support the Kerry/Kennedy NFIP Reform bills.

* For more information contact conservation groups leading NFIP reform efforts:

David Conrad, National Wildlife Federation, 1400 16th Street, NW, Washington, D.C., 20036, (202) 797-6697, fax ext. 6646; or

Beth Millemann, Coast Alliance, 235 Pennsylvania Ave., SE, Washington, D.C., 20003, (202) 546-9554, fax ext. 9609.

(Beyond the Ark continued from p 3)

where the greatest changes in hydrology are occurring because of urbanization. It is also where community and local organization can do the most.

Even in mapped and regulated floodplain areas, however, serious deficiencies exist. Much of the mapped floodplain does not have calculated flood elevations but only a general outline of flood risks. As a result, communities do not have the tools they need to guide and protect new development. Even where flood studies are under way, it typically takes five years or more to complete a study and adopt regulations. Often, much of the floodplain is developed by then, putting buildings and people at risk.

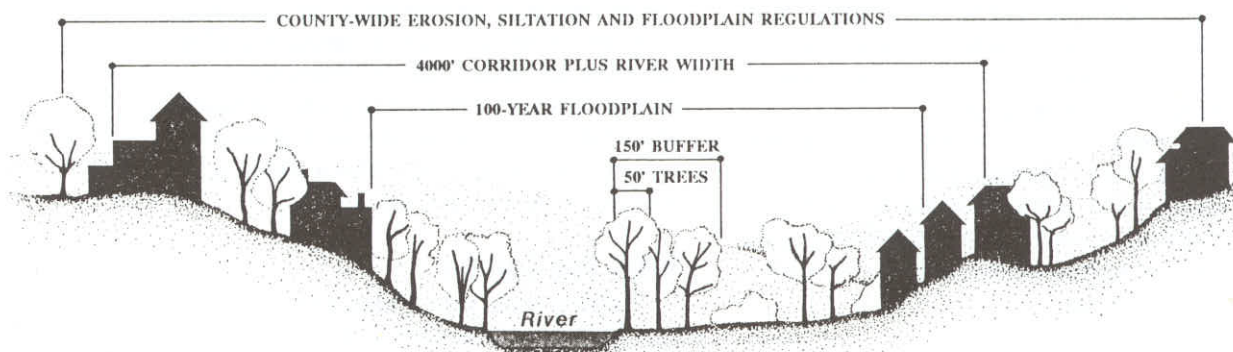
Another gap in current programs concerns high-risk and unusual hazard areas that have been mapped and regulated but whose maps and regulations inadequately address the special problems. Such areas include alluvial fans; floodplains adjacent to rivers or streams with moveable (erodible) channels; combined flooding/erosion areas, both inland and coastal; areas with long-term fluctuations in ground- and surface-water elevation, such as those adjacent to closed basin lakes; ice jam flooding situations; and subsistence area. In some parts of the United States, such as the West, most of the flood-risk areas are of such a "special" nature.

Despite the massive NFIP and large expenditure for mapping, only limited efforts have been made to prepare special maps for or to apply regulatory standards to special high-flood hazard areas. When the mapping

program was first developed more than 20 years ago, the high costs caused a uniform national approach to be developed to map and regulate all hazard areas, even high-risk ones. In addition, mapping efforts have generally assumed "existing" watershed conditions, despite broad recognition that urbanization causes dramatic increases in future flood peaks.

The time has come for a shift in mapping philosophy from one overall approach for the whole nation -- based primarily on historical flood events -- to much more specific mapping of certain areas to reflect geomorphological factors and particular hazards and to anticipate future development. Such mapping is essential to provide local communities with the tools they need to convince citizens that there is a reasonable, credible, and accurate way of identifying and managing the flood hazards on their properties and to develop multiobjective local regulatory and management efforts. Such mapping will be expensive, but it need not be carried out on a nationwide basis and could be undertaken on a cost-share basis with states and communities.

Another gap in existing floodplain programs is mitigating the losses to existing structures, starting with structures that have experienced repetitive loss and substantial damage. The assessment report and FEMA data indicate that, in the 1980s, 30,000 structures (2 percent of NFIP-insured structures) filed 2 or more claims of \$1,000 or more and thus accounted for about 30 percent of the claims paid, or \$747 million. In that same period, about 18,000 buildings suffered



Application of Development Standards for Chattahoochee River

The corridor plan for the Chattahoochee River, flowing through Atlanta, Georgia, is considered a model multiobjective river management plan. Restrictions on development in the floodplains of the river and its tributaries reduced the need for additional structural flood protection measures, while protecting open space and creating recreational opportunities. Graphic from A Casebook in Managing Rivers for Multiple Uses (full cite on p18).

damages of more than 50 percent of their value, accounting for more than \$438 million in claims paid [12]. Despite hopes that present regulations would lead to a gradual upgrading or elimination of existing substandard structures, only limited progress has been made through the regulation approach alone. A multiobjective mitigation program designed to prevent or reduce future flood damage to these few structures through elevation or relocation has tremendous savings potential.

The lack of financial incentives and landowner assistance to relocate or upgrade substantially damaged structures is illustrated by the situation in Florida's Dade County, which includes Miami. In this area, more than 3,000 homes were substantially damaged by the winds of Hurricane Andrew [13]. Insurance will provide funds to rebuild the homes to their "before-hurricane" conditions. The catch is that these homes are in a flood hazard area. Rebuilding at their former level will not reduce the risk of their being significantly damaged by up to four feet of water in the next flood.

It would cost an additional \$30,000 each to elevate the structures. Because the residents' entire savings were lost in the hurricane and their places of employment may also be out of business for an indeterminate time, their ability to pay for or arrange mortgages for this work is almost nonexistent. Insurance policies, even flood insurance policies, do not provide monies to mitigate against future disasters. Similarly, disaster relief funds can only be used for rebuilding [14].

It is now more than nine months since Hurricane Andrew, and many of the 3,000 homes remain unrepaired. Modest federal mitigation grants or low-interest loans could help reduce future federal and private outlays when floods do occur.

Present programs also fail to protect the natural and cultural functions of floodplains. The task force's assessment report discusses the natural and cultural functions of floodplains in some depth and concludes that the existing federal, state, and local floodplain management programs do not adequately protect the pollution-control, habitat, flood storage, recreational, and other natural functions. The report does not, however, adequately examine the reasons why the programs neglect these functions. One reason is that such functions are not mentioned in federal standards for floodplain regulations, and only a relatively small number of communities have incorporated additional provisions into their regulations. In some instances, the availability of subsidized federal flood insurance may have promoted development in highly sensitive or valuable areas, such as wetlands and riparian habitat in the West. Secondly, federal and state floodplain management agencies have generally not promoted the protection of natural and

cultural functions because of their narrow flood loss reduction objectives, a lack of expertise concerning such functions, and a lack of multiobjective approaches for both reducing flood losses and promoting natural and cultural functions. A third reason is that floodplain management has for a long time been narrowly conceived of as managing "excess water" rather than as a part of a broader water resources management that encompasses point and nonpoint source pollution control, storm-water management, water supply, erosion and sediment control, recreation, aquatic habitat protection, and wetland protection and management.

Cost-Effective Management

To address all of these problems, floodplain management should be approached as part of multiobjective watershed (water resources) management with adequate protection for natural and cultural functions. Improving the monitoring and enforcement of existing approaches is necessary, but will address only a portion of the gaps.

Community, citizen-based efforts are essential to closing these gaps, and yet communities are not being provided with adequate incentives and help. The U.S. floodplain management program needs to be more integrated with other programs that affect floodplains, more localized, more comprehensive, and more unified on a watershed and local government level.

At the federal level, less emphasis should be placed on new massive programs and new expenses and more should be placed on shifting the federal role from managing the nation's floodplains to being a facilitator for state and local programs that address the gaps in existing efforts. To address flood losses and better protect natural and cultural functions, the administration, Congress, states, and local governments need to provide a rational, multiobjective framework for watershed-level efforts that are facilitated by federal agencies and states. Federal agencies and states should have continued roles in providing technical assistance, grants in aid, and other assistance to facilitate the accomplishment of federal, state, and local goals, including flood-loss reduction, wetland protection, good water quality, and recreation, while avoiding single purpose programs. FEMA's community rating system, which provides lower insurance rates for communities with floodplain management efforts that exceed federal standards, is a positive example of such a measure.

Federal subsidies should also be revised to better promote individual responsibility and multiobjective approaches. Nonstructural approaches adopted over the 25 years -- as well as NFIP -- tend toward that goal. Nevertheless, *(continued on next page)*

this goal is undermined by continued disaster assistance and federal subsidies of beach nourishment, beach erosion control, flood control, and flood insurance for certain high-risk areas where the low insurance rates and regulations do not accurately reflect the risk. These subsidies continue to bias local and state decision-making toward structural solutions, even when such decisions are not consistent with individual responsibility, cost-effective use of the floodplain, or achievement of natural and cultural functions.

Federal cost-benefit ratios for flood control and other water resources projects also deserve a hard look, particularly in regard to the calculation of benefits for preventing future flood losses, protecting natural and cultural functions, and providing long-term sustainable use of natural systems. Present procedures are applied in a manner that produces high benefit-cost ratios where intensive development has already occurred or is allowed in the floodplain.

In addition, Congress should provide incentives for multiobjective floodplain and watershed planning and management that anticipate future conditions. Preference should be given to state and local governments, watershed planning, open space, floodplain management, and post-disaster assistance programs that integrate floodplain management into future-oriented environmental programs, such as river management, greenways, trails, point and nonpoint source pollution controls, erosion controls, and wetland management. Such incentives and funding could include adopting a special multiobjective river corridor management act that gives small grants to communities and citizen groups that undertake multiobjective programs and implementing new wetland and watershed management initiatives

The U.S. floodplain management program needs to be more integrated with other programs that affect floodplains, more localized, more comprehensive, and more unified on a watershed and local government level.

for states and local communities as part of the Clean Water Act reauthorization. Support for multiobjective programs should be included in public works budgets and in the new "job corps" and economic stimulus package of the Clinton administration.

Coordination among federal, state, and local governments should also be improved. An interagency mechanism is needed to permit and encourage the federal agencies to play a more active and coordinated role in establishing and

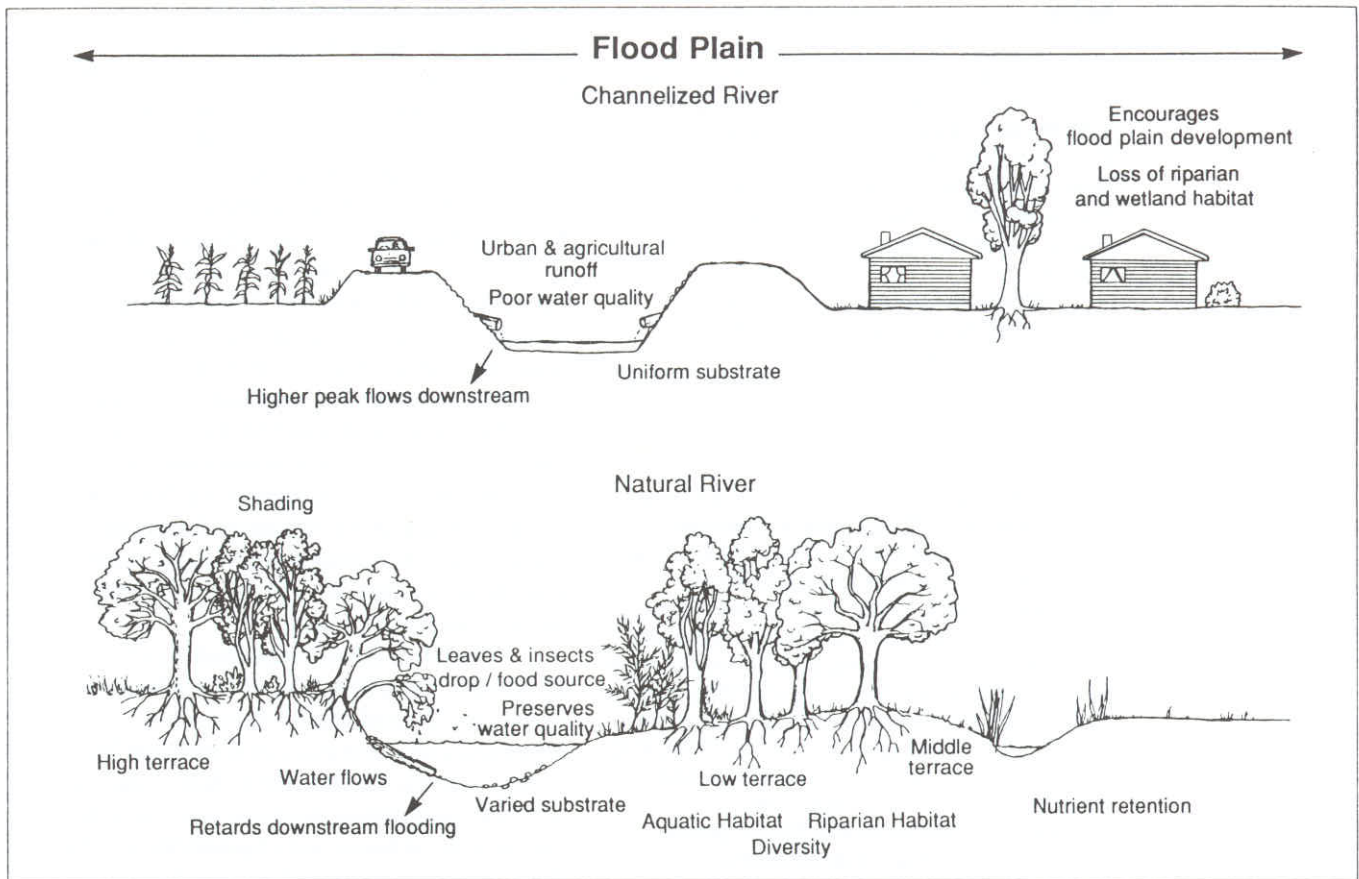
implementing multiobjective floodplain and water resources management policies. For all its faults, the U.S. Water Resources Council served this role, and its re-establishment or the formation of a new coordinating and policy-setting body is needed.

Improved joint training and technical assistance are also needed. Two of the principle barriers to effecting change in national floodplain management policy are compartmentalism and lack of training. Federal multidisciplinary teams that include representatives of federal agencies, states, local governments, and non-profit interest groups would particularly benefit from joint training because it would increase cooperation. Priority topics should include mapping and regulation of high-risk and unique hazard areas, facilitation of local government multiobjective watershed efforts, evaluation and protection of natural and cultural functions, restoration of floodplain systems, and nonstructural ("soft") engineering systems.

Data gathering, monitoring, and oversight of federal flood-loss reduction programs should be improved in relation to one another and to other resource management programs. Federal flood-loss reduction programs should be evaluated in terms of the overall objective of reducing flood losses and protecting natural and cultural functions rather than achieving the programs' individual statutory mandates. For example, NFIP must be viewed in the context of larger federal disaster and flood-loss reduction efforts -- not as a separate program that balances its own books even though the taxpayers' costs for disaster assistance continue to rise. Post-disaster policies should also be re-evaluated to determine whether they are reducing, rather than simply perpetuating, future losses.

Shifting floodplain management to emphasize community based multiobjective and watershed-based efforts tailored to local conditions will not be easy. Existing institutions have enormous bureaucratic inertia, and many interest groups as well as agency staff tend to favor the status quo. Uniform, broad-brush national approaches for mapping, regulation, and management are less time-consuming for federal agency staff to administer, and measures that increase the federal workload without increasing federal staff will encounter strong opposition. Some federal agency staff also fear the loss of control. They are accustomed to initiating and implementing flood-loss reduction measures and are reluctant to share responsibility and power with states and local governments. In addition, various federal statutes authorize strong, direct federal roles rather than assistance to local governments.

Floodplain managers also often lack the multidisciplinary expertise needed for the



protection and restoration of natural and cultural functions, such as wetland protection. In addition, there are concerns that local government and citizen-based programs will be dominated by local real-estate and other special interest and will not meet regional or national needs and that local, citizen-based efforts will lack the expertise to address highly technical flood, pollution, control, and wetland restoration efforts. Community-based watershed approaches involving detailed data gathering, computerized geographic information systems, and other sophisticated analysis techniques can also be very expensive. Various land-use planning efforts for watersheds and other areas have often proved to be of limited value if separated from implementation.

All of these arguments, however, do not justify continuing the status quo. Experience over the last 30 years has shown that, despite the expenditure of huge sums of money, the federal government alone cannot "solve" flood problems.

New, community-based efforts can be practical and implementation-oriented. They need not be prohibitively expensive, as indicated by many successful efforts already implemented across the nation. Community efforts can be financed by combining funds

from a variety of programs meant to address such activities as nonpoint and point pollution control, storm water management, outdoor recreation, community redevelopment, and wetland and habitat protection and restoration, as well as flood-loss reduction. Landowners, citizen groups, and local governments must be brought more fully into the process as partners to address not only flood control but also other community economic and environmental needs.

Community-based initiatives need not place huge new demands on federal staff or budgets if coordinated use can be made of the many experts throughout the federal agencies, including the Army Corps of Engineers, FEMA, the Soil Conservation Service, the Environmental Protection Agency, and the U.S. Geologic Survey. Strong, continued federal and state involvement in such community efforts is needed to provide technical assistance and training and to reflect regional perspectives.

It is true that floodplain management must be revised technically to continue to reduce flood losses and meet broader, multiobjective goals. But, more importantly, floodplain management must become a more complete and real local, state and federal partnership.

(continued on next page)

(above) Natural vs. Channelized River. Graphic from California's Rivers A Public Trust Report. Prepared for the California State Lands Commission, 1993.

Notes

1. See U.S. Water Resources Council, "Estimated Flood Damages: Appendix B," Nationwide Analysis Report (Washington, D.C.: U.S. Government Printing Office, 1977); and Federal Interagency Floodplain Management Task Force, *Floodplain Management in the United States: An Assessment Report*, doc. FIA-17/May 1992 (Washington, D.C.: Federal Emergency Management Agency, 1992), Chapter 1.
2. Information provided by the Federal Insurance Administration, Federal Emergency Management Agency, Washington, D.C.
3. National Research Council, *Restoration of Aquatic Ecosystems* (Washington, D.C.: National Academy Press, 1992).
4. Ibid.
5. See J. Kusler, "Innovation in Local Floodplain Management: A Summary of Community Experience," Special Publication 4 (Boulder, Colo.: Natural Hazards Research and Applications Information Center, 1982); J. Kusler and S. Daly, eds., "Wetlands and River Corridor Management" (Paper presented at the Association of State Wetland Managers, Charleston, S.C., 5-9 July 1990); National Park Service, *A Casebook in Managing Rivers for Multiple Uses* (Washington, D.C.: NPS, 1991); C.E. Little, *Greenways for America* (Baltimore, Md.: Johns Hopkins University Press, 1990); E. Grundfest, ed., "Multiobjective River Corridor Planning" (Proceedings of the Multiobjective Workshops in Knoxville, Tenn., and Colorado Springs, Colo., Association of State Floodplain Managers, 1989); and L.M. Labaree, *How Greenways Work: A Handbook on Ecology* (Washington, D.C.: National Park Service, 1992).
6. Ibid.
7. Congressman Joseph M. McDale (R-Pa.) and Morris K. Udall (D-Ariz.) introduced a State and Local Multiobjective River Corridor Assistance Act in 1989 (HR 4250). This bill would have provided technical assistance and grants-in-aid to local governments initiating multiobjective efforts. The bill was referred to committee and never adopted.
8. Federal Insurance Administration, note 2 above.
9. See Donnelly Marketing Information Service, *System Update Report* (Washington, D.C.: Federal Emergency Management Agency, 1987) as described in Federal Interagency Floodplain Management Task Force, note 1 above, Chapter 3.
10. Federal Interagency Floodplain Management Task Force, note 1 above, Chapter 6.
11. Information provided by the Federal Insurance Administration, note 2 above.
12. Federal Interagency Floodplain Management Task Force, note 1 above, chapter 13.
13. Information provided by FEMA and Dade County, Florida, staff at the Association of State Floodplain Managers conference in Atlanta, Georgia, March 1993.
14. Ibid.

(*Great Flood continued from p 5*)

the Missouri. The U.S. Army Corps of Engineers has resisted demands to rebuild all of the failed levees, not just those that have qualified for repair funds by enrolling in the Corps' rehabilitation program.

Some members of Congress, led by Rep. Norman Mineta (D-Ca.) and Harold Volkmer (R-Mo), have shown strong support for a new vision for flood control and flood management, successfully passing legislation to increase funds for relocation and other flood-loss reduction activities like floodproofing. More than 200 towns, with about 10,000 structures, have taken the first steps to move from harm's way. But others, led by Senator Kit Bond (R-Mo.), have demanded billions of dollars for levee repairs, preferring a return to the status quo. Bond's efforts have so far been blocked by environmental groups.

What does a new vision look like? Ultimately, the goal will be to take advantage of the natural flood control functions of floodplains and their associated wetlands by storing water in the watershed. Better drainage and land management practices must substitute our reliance on levees and channelization. The flood insurance program must be reformed to create real disincentives for floodplain development. States must be required to prepare comprehensive floodplain management plans. Better land management practices may also help reduce the threat of contamination posed by agricultural and industrial development along the river.

An independent White House-created task force, led by Corps nonstructural advocate Gen. Gerald Galloway, will help to shape a new vision for the river. The task force, the first of its kind since the New Deal, will release its findings in May 1994. But the real impetus for change must be in the hearts and minds of the people of the Midwest. This flood has shaken their faith in levees, but whether or not they will become converts to the not-so-new gospel of floodplain management and nonstructural alternatives remains to be seen.

Kathy Grandfield of the Sierra Club's Midwest Office contributed to this article.

Coastal Barriers Resources System Works

Is it time to extend the program to the shores of America's

by Beth Millemann, Coast Alliance

In 1982, Interior Secretary James Watt and the National Taxpayer's Union supported a bill to save federal tax dollars. The American Red Cross supported a bill to protect human lives. And environmental groups supported a bill to conserve sensitive coastal resources.

What's surprising is that they all supported the same bill. It was the legislation that created the Coastal Barriers Resources System, a unique program that combines fiscal frugality with public safety and environmental protection.

In 1990, these same interests came together to expand the program, which now extends its protections along the Atlantic, Gulf of Mexico and Great Lakes shores. Immune to "wise use" attacks and appealing to a variety of interests, it may be time to consider extending the program to the shores of America's rivers.

Despite its unwieldy name, the Coastal Barriers Resources System (CBRS) accomplishes its goals with an elegantly simple approach: it is bad public policy to use Federal tax dollars to fund development that is vulnerable to deadly acts of nature and that is environmentally destructive. So all Federal subsidies are forbidden for new development on areas included in the CBRS. You can still build — but without access to the taxpayer's pocket. Your private property rights remain undisturbed — as does U.S. Treasury. No land is taken, no zoning occurs. The federal government simply picks up the piggy bank and walks away.

And the result in most instances is that construction on areas in the System slows or halts. Without federal flood insurance of federal funds for electricity, sewage treatment, road construction and the dozens of other Federal infrastructure program, development in the CBRS areas becomes simply too expensive.

The financial safety net encouraging shoreline construction is staggering. In 1988, the Department of the Interior estimated that every developed acre of coast gobbles up \$50,000 in federal funds. More than 50 federal programs pump money into coastal development and redevelopment. The National Flood Insurance Program alone is one of the nation's largest domestic programs, worth \$245 billion in policies . . . and \$70 million in the red.

This illustrates the sad truth about waterfront construction: it tends to get wet, whether from storms or hurricanes or bad tides or erosion. And when it does get wet, it costs a bundle to fix: a bundle that the American taxpayer unwittingly supplies whenever rivers, oceans and lakes get whipped-up.

Congress recognized the destructive cycle of shoreline construction and reconstruction, and created the Coastal Barriers Resources System to protect at least some of the nation's coastal lands. Undeveloped islands, dunes, beaches, and wetlands were put in the CBRS, first 450,000 acres in 1982, then another 810,000 acres in 1990. The CBRS now includes areas along the Atlantic, Gulf of Mexico, and Great Lakes, and areas along the Pacific are proposed for inclusion.

Additions along the West Coast will probably be opposed by the same "wise use" groups that opposed the 1990 additions: the National Association of Realtors, National Association of Homebuilders and other pro-development interests. But the Coastal Barrier Resources System sidesteps the entire "takings" issue. There is nothing in the United

Combining fiscal frugality with public safety and resource protection makes sense and appeals to a variety of interests.



States Constitution that guarantees a citizen's right to federal development subsidies. Land is not taken away through the CBRS, taxpayer-funded subsidies are.

It may be time to consider a similar approach for areas along America's rivers. Many of the same federal perks that drive coastal development encourage riverine construction, as well: federal flood insurance and infrastructure funds, to name just a few. And the same threats occur along rivers as along oceans: people die, massive financial damage occurs and sensitive waterline resources are lost when houses are built too close to the water. A program like to Coastal Barrier Resources System could do for the rivers what it has done for parts of the nation's coasts: save money, human lives and aquatic resources all at once.

Selected References on Floodplain Management

"The Challenge of the Mississippi Flood," by Myers, Mary Fran and Gilbert White, *Environment*, December 1993.

"Common Legal Questions Pertaining to the Use of Floodplains and Wetlands" prepared by the Association of State Floodplain Managers by Jon A. Kusler and Rutherford H. Platt.

Association of State Floodplain Managers, PO Box 2051, Madison, WI 53701-2051, (608) 266-1926. The ASFPM is an organization of professionals involved in floodplain management, flood hazard mitigation, the National Flood Insurance Program, and flood preparedness, warning and recovery. The ASFPM publishes a monthly newsletter, the proceedings of its annual meeting, a series of technical papers, and other specialized reports.

The Floodplain Management Resource Center at the Natural Hazards Center, University of Colorado, IBS#6, Campus Box 482, Boulder, CO 80309-0482, (303) 492-6818. The FRC is both a library and a referral service for floodplain management publications (including manuals, research reports, audio-visual presentations).

"Disaster Before the Flood" A St. Louis Post-Dispatch Special Report. Sunday November 21, 1993. Available from St. Louis Post-Dispatch, 900 North Tucker Blvd., St. Louis, MO 63101, (314)340-8165

Floodplain Management in the United States: An Assessment Report by Federal Interagency Floodplain Management Task Force, doc. FIA-17/May 1992 (Washington, D.C.: Federal Emergency Management Agency, 1992)

Mississippi Times: Newsletter of the Sierra Club's Mississippi River Basin Program, 214 N. Henry, Suite 203, Madison, WI 53703, (608) 257-4994.

The River Register, a bimonthly publication of the Upper Mississippi River Basin Assoc., 415 Hamm Bldg., 408 St. Peter Street, St. Paul, MN 55102, (612) 224-2880.

The Missouri River Report, Missouri River Basin Association's newsletter, PO Box 9193, Missoula, MT 59807, (406) 542-6272.

A Casebook for Managing Rivers for Multiple Uses by Assoc. of State Wetland Managers, Assoc. of State Floodplain Managers, National Park Service, 1991. Available from National Park Service, PO Box 37127, Washington, D.C. 20013, (202) 343-3780.

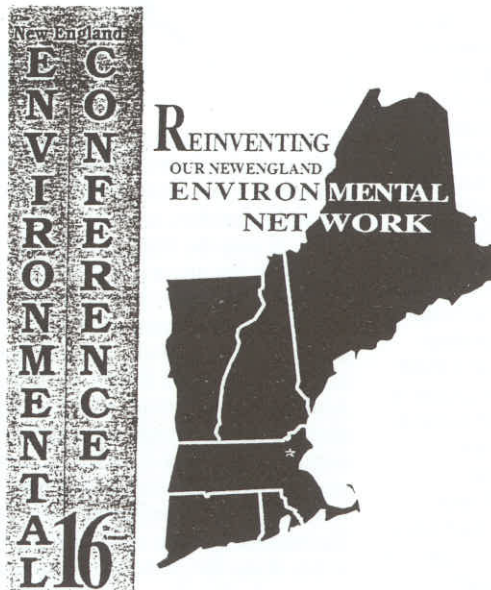
Riverways Community Guide: Strategies for Drafting and Passing Local River Bylaws. Prepared by Joan Channing Kimball for the Massachusetts Riverways Program Department of Fisheries, Wildlife & Environmental Law Enforcement, 100 Cambridge Street, Boston, MA 02202

In addition, the US Army Corp of Engineers and FEMA have many publications and handbooks available on different aspects of floods, floodplains and flood insurance.

Conferences

"New England's Watershed Futures: Changing Our River Legacies for the 21st Century" is a workshop track at the **New England Environmental Conference** on March 26-27, 1994 in Medford, MA.

River Network is cosponsoring the track and lining up over 40 distinguished panelists to probe the conflicts and challenges facing New England's rivers. For more information contact: New England Environmental Conference, Lincoln Filene Center, Tufts University, Medford, MA 02155, (617) 627-3451, fax (617) 627-3401, Attn: Caroline Simmons, Conference Director.



"Rivers Without Boundaries," is a symposium sponsored by the **American River Management Society** to explore solutions for coordination, cooperation and consensus in the management of river systems in Grand Junction, CO on April 19-22, 1994. For more information, call Caroline Tan, ARMS Program Director: (510) 655-5844.

"Aquatic Fauna in Peril: The Southeastern Perspective," is a conference sponsored by the **Tennessee Aquarium** to be held in Chattanooga, TN on March 31-April 1, 1994. For information contact: TN Aquarium, Attn: Janet Allen, PO Box 11048, Chattanooga, TN 37401, (800) 262-0695.

Resources Available from River Network

Publications

New! *Model Bylaws for River Advocacy and Protection Organizations* by Pete Lavigne. Example bylaws to help river groups get organized and function effectively. (1993, 8 pgs, Partners \$3, others \$5)

New! *Board Member Statement of Agreement and Code of Ethics* by Pete Lavigne. A model statement clarifying board responsibilities and authority. (1993, 2 pgs, Partners 1\$, others \$2)

Protecting Instream Flows: A Resource Guide for River Guardians by Neil Schulman. Explanation of water law, protection tools and strategies, case studies, model programs, flow assessments methods and state by state listing of contacts from advocacy groups and agencies, and a comprehensive bibliography. (1993, 90 pgs, Partners \$8, others \$10)

"Outfitter and Guest Fund Raising: The Pass-Through Contribution Model" by Kevin Wolf and Rob Elliott. (revised 1993, 8 pgs, Partners \$3, others \$5)

C(3) or C(4): Choosing Your Tax Exempt Status by Chris Cook. A manual to lead river groups through the decision-making process of whether to apply as 501(c)(3) or 501 (c)(4) tax-exempt status. (1991, 16 pgs, Partners \$3, others \$5)

People Protecting Rivers: A Collection of Lessons from Grassroots Activists by Phil Wallin and Rita Haberman. Case studies of river protection efforts on the Charles (MA), Clark Fork (MT/ID), Gauley (WV), Sacramento (CA) and Upper Mississippi (MN). Organized by issue. (1992, 72 pgs, Partners \$8, others \$10)

River Wise by Kenny Johnson, Shauna Whidden and Lindy Walsh. A collection of public education techniques. (1992, 33 pgs, Partners \$5, others \$7)

River Wealth by Kenny Johnson and Lindy Walsh. A collection of fundraising ideas. Organized by membership, business support, events, sales and services.

River Voices (back issues)
(16-20 pgs, Partners \$3, others \$4)

V4N3 ('93)	1993 National Survey Results
V4N2 ('93)	Public Trust Doctrine
V4N1 ('93)	Water Efficiency
V3N4 ('92)	Business & Labor as Allies
V3N3 ('92)	Clean Water Act (photocopy)
V3N2 ('92)	"Wise" Use Movement (photocopy)
V3N1 ('92)	River Corridor Protection
V2N4 ('91)	How to Launch a Campaign
V2N3 ('91)	Volunteer Water Monitoring
V2N2 ('91)	Sorting Through Protection Tools
V2N1 ('91)	1990 National Survey Results
V1N3 ('90)	River Values (free)
V1N2 ('90)	Dealing with Private Land-Use (free)

Fundraising Videos

River Network has a set of six videos of a fundraising workshop instructed by Kim Klein, a national fundraising trainer and author of *Fundraising for Social Change*. The topics covered in the videos include:

Planning for Fundraising
Special Events
The Role of the Board
Asking for Money & Prospect Identification
Major Gift Solicitation
Raising Money by Mail

River Network loans out the videos free of charge, one at a time with a \$50 refundable deposit. Call us and we'll let you know what videos are available or put you on the waiting list. (For Partners only.)

LOTUS 123 Computer Software

In cooperation with the Lotus Development Corporation, River Network is offering a free copy of Lotus 123 software to River Network Partners. Lotus is a dos version spreadsheet program for use with personal computers. (Sorry we do not have software compatible with Apple computers.)

If your group is interested, send River Network a brief letter that includes the following information: 1. a statement of proof that your group is incorporated; 2. a brief description of how your group plans to use it; and 3. the size computer disks (3.5 or 5.25 ") you'd like. (For Partners only.)

Join the River Network Partnership

Becoming a River Network Partner will help you save your river by:

- * Giving you access to a wide variety of assistance with fundraising, river topics, organizational development and strategies;
- * Providing a mechanism for sharing with, and learning from, other river guardians;
- * Providing a way to work collectively on policy issues critical to saving America's rivers.

Yes, we/I would like to become a River Network Partner

Organizational Partners -- grassroots and state river groups.

Dues based on a sliding scale according to organizational budget.

budget	dues
<\$20,000	\$60
\$20,001 - 100,000	\$100
\$100,000 - 200,000	\$200
>\$200,000	\$300

Individual Partners -- individuals committed to taking action or a leadership role to save a particular river, stream or watershed.
Dues \$60.

Sustaining Partners -- individuals willing to provide financial support to help others save rivers. Dues \$100 (min.)

name: _____

group: _____

address: _____

city, state, zip: _____

phone: _____

river(s): _____

Please return to River Network,
PO Box 8787, Portland, OR 97207.

River Network would like to welcome and thank our River Network Partners

Susan Lynn, Truckee River Yacht Club (NV)
Cap Allen, Animas River (CO)
Joseph Chasnoff, Concerned Citizens of Alderson/Glenray (WV)
Matt Evans, Trout Unlimited -WV Chapter (WV)
Peter Enticknap, Lynn Canal Conservation, Inc., (AK)
Steve Harris, Rio Grande Restoration (NM)
Nancy Rose, Tomorrow/Waupaca Watershed Assoc. (WI)
Lorah Hopkins, Schuylkill River Greenway Assoc. (PA)

Robert Searns, Urban Edges, Inc. (CO)
Greenbrier River Watershed Assoc. (WV)
Suzi Mixon, Friends of the Locust Fork River (AL)
Michael Caire, SORE (LA)
George Cofer, Save Barton Creek Assoc. (TX)
Lisa Bryce Lewis, NW Watershed Education Alliance (WA)
Wes Wood, Valley Forge Chapter of TU, (PA)
Patricia Stevens, Chattahoochee River (GA)

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