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ASSOCIATION OF STATE FLOODPLAIN MANAGERS, INC.

## FLOODPLAINS AND THE TYRANNY OF SMALL DECISIONS

by Jay A. Leitch

Floods and flooding continue to be the world's most destructive "natural" disaster, causing billions of dollars in damage each year (Leitch and Shultz, 2003). In fact, floods affect more people around the planet than all other disasters combined. Estimates of annual flood damage in the United States alone exceed \$4 billion. Some areas of the United States are routinely plagued by floods, such as the Red River of the North basin.

### Why?

As floodplain managers know, the reasons that flood damage continues to escalate include increases in precipitation, natural or human-made changes in hydrology, and encroachments on floodplains. The role of changes in precipitation and hydrology can be and are assessed through objective analysis of meteorologic and hydrologic data over time. However, to determine the effect of human encroachment onto the floodplain, one need only look at a long list of factors and examples. This paper suggests one reason why humans continue to encroach upon floodplains.

Reaching an undesirable end result gradually through a chain of independent, seemingly harmless decisions is often referred to as the "tyranny of small decisions" (Kahn, 1966). This tyranny is common in

water management. For example, some day, sooner or later, when a major flood returns to the Red River of the North and homes are damaged, some people will ask, "Why did it happen again?" Responses might include:

- There was nothing we could do to stop the development;
- We didn't anticipate the problem;
- We didn't have enough information;
- The development fell through the regulatory cracks;
- Permitting decisions were fragmented and uncoordinated.

The political dodge response will be "there was nothing we could do." Only rarely would flooding be a surprise to people other than uninformed lay persons. Even more rarely would information be inadequate to make reasonable decisions and allow for appropriate freeboard, for example. Falling through the regulatory cracks shouldn't happen to any but the most trivial project. Unfortunately, it often does happen that marginal or questionable projects receive official sanction—one seemingly harmless piece at a time—such as in the decisionmaking incidents described below and many others like them.

### Case in Point

After the disastrous Red River of the North flood of 1997, the International Joint Commission (IJC) established a task force to find ways to mitigate future losses from flooding in the Red River watershed, which encompasses parts of Canada and the United States. Among the findings and recommendations listed in the task force's report, *Living with the Red*, are:

Although the 1997 flood was a rare event, floods of the same magnitude as 1997, or even

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*Jay A. Leitch is an agricultural economist with North Dakota State University, and has done research in natural resources economics and public policy. Here he ponders an illustration from his own watershed of a phenomenon floodplain managers know all too well—the cumulative adverse impact of small but unwise decisions. The Oakport development he describes has engendered local controversy, and gained the attention of regional environmental groups. Dr. Leitch's opinions are his own and do not necessarily reflect the views of North Dakota State University.*

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# from the Chair

*Chad Berginnis*

We want you to become a member of the Association of State Floodplain Managers' SWOT Team! Okay, so the mission is not some undercover special assignment; rather, the mission is . . . well . . . the mission. That is, the mission and focus of the ASFPM as an organization, and where we want to be five years into the future. It is time that we update the ASFPM Strategic Plan.

Most of you have heard of strategic plans, or use them in your work. Whether your organization is private sector, public sector, or non-profit, a strategic plan is a valuable road map for evaluating trends, reviewing programs and services, and setting future direction. It is not a document cast in stone, but is intended to be flexible enough to recognize and change with future events. As the ASFPM becomes larger and inherently more complex, a strategic plan identifies the most important areas for focusing our time and effort. The ASFPM strategic plan has a five- to seven-year time horizon, and uses member input as a guide. Our last update to the strategic plan was done in 1997.

Previous iterations of the ASFPM Strategic Plan have served us well. It is fascinating to look at the 1997 plan and review all of the activities undertaken by the ASFPM to accomplish its goals. For example, under the goal of Enhance and Expand the Practice of Floodplain Management, an objective/activity indicated that the ASFPM would "provide input on and monitor rules, regulations, programs, and policies of the public and private sectors that affect floodplain management." To meet this goal, the ASFPM released *National Flood Programs in Review—2000*, likely the most exhaustive evaluation of the nation's floodplain management policies to date. The 1997 plan also projected the development of a home page on the internet. Today, we have a fully functional and improving website that is used not only by our membership, but also by policymakers, citizens, academia, and others worldwide. Relating to the goal Develop, Support, and Gain Recognition for the Profession of Floodplain Management, one objective identified in the 1997 plan was to establish a national program to certify the capabilities of floodplain managers. Today, the Certified Floodplain Manager Program is growing rapidly, and the CFM designation is being widely recognized in the field of floodplain management. Finally, the 1997 plan identified a goal of Maintaining an Organization Capable of Achieving its

Mission. Objectives included establishing an ASFPM Foundation, maintaining and enhancing existing sources of income and pursuing additional ones, and fostering the development and growth of chapters. Today, we have a viable ASFPM Foundation, increasingly diversified sources of income, and 17 chapters.

Now, we need your help! To begin updating the strategic plan, a survey is being sent to all ASFPM members. Remember when I asked you to be a member of the SWOT Team? In strategic planning terms, SWOT means "strengths, weaknesses, opportunities, and threats." It is important to evaluate the ASFPM relative to each of these to identify trends, issues, and future opportunities. The survey that will be e-mailed to all of you is designed to do just that. Your input on this survey will help with the analysis. (Please note that some of you may be receiving two additional surveys—one about the Certified Floodplain Manager Program, and one on the ASFPM Foundation. I urge you to respond to these as well, because they provide additional valuable feedback.) Then, later this fall and in the spring, groups of individuals will meet to review the survey data, develop additional background, and ultimately revise the Strategic Plan. Our goal is to finalize it in 2004.

An effective strategic plan incorporates the accomplishments of yesterday, the mission and challenges of today, and the dreams of the future into one vision—the ASFPM's continued tenure as the nation's leading voice in floodplain management. □

## 2004 Conference in Biloxi, Mississippi

The Call for Abstracts is now online and is your invitation to join other professionals in addressing the many problems and issues associated with reducing flood damage, managing floodplain and fragile coastal resources, and making communities more sustainable in the face of flood risks. The Association of State Floodplain Managers' 28th annual conference will be held May 16-21, 2004, in Biloxi Mississippi, with the theme, "Lighting the Way to Floodplain Management." Coastal and hurricane issues will be featured in the program, along with other floodplain management concerns. The week will include speakers and panels, concurrent sessions, a products/services exposition, technical workshops, field tours, and networking activities.

- The firm deadline for abstracts is October 24, 2003. The brochure also gives details about the registration fees and hotel. See <http://www.floods.org>.
- Sponsors and Exhibitors are an important part of the conference. Visit <http://www.floods.org/gulfcoast> for information and forms for these options.
- There is plenty of time to nominate an outstanding local or state program or person for a Floodplain Management Award. The submittal information is at <http://www.floods.org> under the Awards menu, along with the lists of past recipients. Help honor those who make floodplain management a reality.
- Find more information about the Mississippi Gulf Coast at <http://www.biloxibaymag.com> and <http://www.gulfcoast.org>.

Program Coordinator Steve McMaster, Local Hosts Harold Holmes and Rod Emmer, Exhibits Chair Dan Accurti, and Conference Director Diane Brown invite you to the Gulf Coast next May to experience Southern charm, cuisine, history, and hospitality.

# NO ADVERSE IMPACT QUESTIONS & ANSWERS

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*This column gives details and answers questions about the ASFPM's "no adverse impact" approach to floodplain management. The answer to the question below was provided by Bill Nechamen, New York State Department of Environmental Conservation.*

**QUESTION** Is there a connection between NAI and stormwater management, especially the federal requirements for minimizing pollution?

**ANSWER** **Inappropriate stormwater management across the country degrades water quality and increases flood hazards.** As buildings and pavement replace natural soil, agriculture, and forests, storm runoff accelerates, resulting in increased erosion and sediment transport. Pollution is washed from land surfaces to waterways. Sediment fills in where stream velocities slow, often in lakes and wetlands. This reduces the ability of these water features to store or carry flood waters. Increased storm runoff, combined with decreased waterway capacities, leads to more frequent and serious floods.

New federal stormwater Phase II requirements under the National Pollutant Discharge Elimination System are an effort to reduce the most significant remaining source of new pollutants into our rivers, lakes, and seas. The Environmental Protection Agency is requiring many communities and public property owners in urban areas to develop stormwater management programs. In addition, all construction sites of over one acre must now include actions to control construction site runoff. This requirement formerly only applied to sites of over five acres.

The NPDES stormwater management program requirement applies to designated MS4s (Municipal Separate Storm Sewer Systems). They have five years to develop a program with six MINIMUM stormwater management measures that include education and outreach, public participation and involvement, illicit discharge controls, construction site runoff controls, post-construction runoff controls, and pollution prevention/good housekeeping. Each measure should include a look at where things are now and where they should be.

That said, it should be clear that the new MS4 requirements present an outstanding opportunity to consider No Adverse Impact approaches. Planning is central to both NAI and stormwater management approaches. Plans to control runoff from active and completed construction sites will, if implemented properly, reduce pollution loads, erosion, and flooding. Regulations and development standards are needed to assure that necessary runoff controls are in place. Education and outreach are essential to help developers and the public understand the purpose of runoff controls and how to implement them. The education and outreach process required of MS4 stormwater management programs provides an opportunity for communities to focus on the big picture: appropriate watershed management to reduce pollution AND flooding. Stormwater management is an important component of NAI. Both stormwater management and NAI approaches can include a focus on smart growth, open space preservation, and conservation and restoration of stream buffers and wetlands.

In terms of site-specific stormwater management approaches, EPA recommends use of BMPs (best management practices) at construction sites and upon completion of the construction project. These BMPs are both structural and non-structural. Structural measures include sound planning procedures, buffer strips, riparian zone preservation, minimizing land disturbance, and maximizing open space. Structural measures include wet ponds, wetlands, infiltration, filtering practices, and open channels that are designed for detention or retention. There are also infiltration measures to allow water to slowly percolate to ground water. Vegetative methods can provide filtration of pollutants and maintain natural site hydrology. The purpose of all these measures is to reduce pollution loading from stormwater and to control stormwater volume.

To a student of NAI practices, this should all sound familiar. And since so many public entities must develop stormwater management programs to comply with federal regulations, this is a great time to introduce NAI practices to local officials so that municipalities receive the benefits of improved flood protection while reducing pollutant loads.

The new Phase II program is nation wide, and has been expanded to include small MS4s (those that serve a population of less than 100,000 people and located in an urbanized area or designated by the permitting authority). This will mean that many, many more communities are included in the program and will have a double opportunity to minimize the adverse effects of flooding [see article about Franklin, Tennessee, on p. 8 of this *News & Views*]. The approaches they take will vary by state and region. Additional information can be found on the EPA's website at [http://cfpub.epa.gov/npdes/home.cfm?program\\_id=6](http://cfpub.epa.gov/npdes/home.cfm?program_id=6). Learn more about the concept of NAI and how it is being applied across the United States by checking the ASFPM's website at <http://www.floods.org>. □

# Washington Report

## FEMA KEEPS ITS NAME

Michael Brown, Under Secretary for Emergency Preparedness and Response in the new Department of Homeland Security has announced that the name “Federal Emergency Management Agency” and the acronym “FEMA” will continue to be used to identify the former independent agency within the Department of Homeland Security. This follows many months of conflicting guidance on the matter. Now, Federal Emergency Management Agency can be used to refer to the agency, its employees, and its work. The FEMA acronym will be used on letterhead, business cards, signage, and other products in conjunction with the DHS seal. Retaining the FEMA name is an important contributor to retaining the visibility and credibility of ongoing programs for flood mitigation, and allows FEMA’s past successes to reflect positively on current and future efforts.

## LEGISLATIVE REPORT

### DHS Appropriations Done; Movement on other Legislation

As expected, September was a productive month in the Congress for appropriations and legislation involving natural disasters and floodplain management. The first-ever appropriations bill for the Department of Homeland Security went to a House-Senate Conference Committee to resolve differences between the House- and Senate-passed versions. The Conference Report (H. Rept. 108-280) was agreed to in both houses on September 24 and the bill (H.R. 2555) has gone to the President for signature.

Reauthorization of the Disaster Mitigation Act of 2000 was approved in a House subcommittee after a hearing at which ASFPM Chair Chad Berginnis testified. The Senate Environment and Public Works Committee held a hearing September 24 on Federal Emergency Management Agency matters, including its effectiveness since becoming part of the Department of Homeland Security. A hearing in the Senate Banking Committee on the repetitive loss bill reported out of the House Financial Services Committee (H.R. 253) was scheduled for September 24, but then postponed. House floor consideration of the bill was anticipated all month and now is expected to occur early in October. The Water Resources Development Act of 2003 was passed in the House and sent to the Senate. The National Earthquake Reduction Act Reauthorization (H.R. 2608) was

scheduled for consideration on the floor of the House during the week of September 29.

### Appropriations

With the end of the fiscal year only days away, the House and Senate passed a Continuing Resolution (H.J.Res. 69) that will extend funding of government programs at the FY 2003 level until October 31. The CR covers the 10 regular appropriations bills on which work has not been completed. Three bills are awaiting Presidential signature: Homeland Security, Defense, and Legislative Branch.

The Congress is well ahead of where it was at this time last year. The House has passed all 13 regular bills and the Senate has passed 7. The Energy and Water (Army Corps of Engineers), Interior (U.S. Geological Survey, National Park Service), Labor/Health and Human Services/Education, and Military Construction bills are ready for House-Senate Conference. A supplemental appropriations bill that includes additional disaster relief funds is moving through Congress, but that bill’s numbers do not reflect damage from Hurricane Isabel. Additionally, the Senate began work on the President’s request for a supplemental appropriations bill that would provide \$87 billion for Iraq- and Afghanistan-related expenses.

**Homeland Security** (HR 2555, H. Rept. 108-169; S. Rept. 108-86, H. Rept. 108-280 (Conference Report))—The Homeland Security Appropriations bill includes funding for FEMA. Flood Map Modernization is funded at the full \$200 million requested. Both the House and Senate had approved the full amount. The new competitive pre-disaster mitigation program is funded at \$150 million (the House had approved \$180 million and the Senate \$150 million). Report language specifically blocks providing \$250,000 to each state for planning purposes, although planning remains an eligible activity. The Hazard Mitigation Grant Program will not be eliminated, as had been requested in the President’s budget, but will continue at 7.5%. The Conference Committee actually provided a higher amount for Emergency Management Preparedness Grants, \$180 million, than had been provided by either the House or Senate. It also keeps the program at FEMA, rather than reorganizing according to the budget request.

**Energy and Water** (H.R. 2754 and S. 1424; H. Rept 108-212 and S. Rept. 108-105)—The President’s budget sought \$7.5 million for Flood Plain Management Services. The House provided \$7.2 million and the

*[continued on page 5]*

# Washington Report (cont.)

Senate \$7.5 million. The House included earmarks of \$500,000 for Kenai Peninsula, Alaska, and \$100,000 for Crawford Park in Rye, New York. The Senate earmarked \$200,000 for East Baton Rouge, Louisiana, and \$200,000 for response measures for the Pacific Islands. For Section 22 Planning Assistance to States, the request was \$6 million and the House provided \$6 million, but included \$1.45 million in earmarks. The Senate provided \$6.34 million with \$340,000 in earmarks.

Parts of the following appropriations bills are of interest to floodplain managers and can be read online:

- **Interior** (National Park Service's Recreation, Trails and Conservation Assistance Program; U.S. Geological Survey)—  
H.R. 2691; H.Rept. 108-195  
S. 1391; S.Rept. 108-89
- **Commerce/Justice/State/Judiciary** (the National Oceanic and Atmospheric Administration and National Weather Service)—  
H.R. 2799 H. Rept. 108-221  
S. 1585; S. Rept. 108-144.
- **VA-HUD/Independent Agencies** (Environmental Protection Agency and the National Science Foundation)—  
H.R. 2861; H.Rept. 108-235  
S. 1584; S. Rept. 108-143.

## Pre-Disaster Mitigation Program Reauthorization Act of 2003

This bill reauthorizes the Pre-Disaster Mitigation Program that was originally authorized in the Disaster Mitigation Act 2000. Since funding for the program has only recently become available, the committee did not have the data on the program it had anticipated by the time of reauthorization.

A hearing and markup session were held by the House Transportation and Infrastructure Committee's Subcommittee on Economic Development, Public Buildings and Emergency Management. This subcommittee has jurisdiction over the Stafford Act.

The bill, H.R. 3181, reauthorizes the Pre-Disaster Mitigation program for three years. It amends the Stafford Act to restore HMGP to 15% after last year's reduction to 7.5% in an omnibus appropriations measure. It also amends the Stafford Act to clarify that the \$5,000 for individuals and household repair is an initial amount and that other assistance can be made available. It changes the due date for a study of mitigation cost reduction to September 30, 2005. The bill likely will be taken up by the full House Transportation Committee on October 1 and a committee report will then be filed.

Plans for consideration of this legislation by the Senate Committee on Environment and Public Works are

still not clear. DMA 2000 expires on December 31, 2003.

The House hearing was held on September 24 (having been postponed and rescheduled due to Hurricane Isabel) to examine issues associated with reauthorization. Anthony Lowe and Larry Zensinger testified for FEMA. Chair Chad Berginnis testified for the ASFPM and Brian Usher testified for the American Public Works Association. He is the Director of Public Works for the State of Illinois and Chairman of APWA's Homeland Security Task Force and Emergency Management Committee. Due to the rescheduling, the National Emergency Management Association was unable to present oral testimony, but presented written testimony.

Anthony Lowe said that plans for the competitive Pre-Disaster Mitigation Program are in the final stages. He was asked if the competitive process would work to the disfavor of smaller, poorer areas. He responded that small, impoverished communities will receive more attention and more technical support. He said he feels comfortable about the effort they are making with small communities and pointed out that the basis is risk, not population. He said that local plans will be integrated into their overall state plan and that funds will go through the state.

The ASFPM's testimony pointed out the importance of a comprehensive mitigation strategy for the nation. Such a strategy would take advantage of various tools and opportunities for accomplishing mitigation. Both pre- and post-disaster mitigation are integral parts of such a strategy, so the ASFPM supports reauthorization of the Pre-Disaster Mitigation Program, especially for planning, and also strongly supports retention of HMGP at the full 15% in order to implement mitigation projects. The testimony expressed concern about the competitive nature of the Pre-Disaster Mitigation Program as it is being administered and pointed out that this differs from the program designed in the legislation. The full text of the testimony can be read at the ASFPM website, <http://www.floods.org>.

The APWA also supported reauthorization of the Pre-Disaster Mitigation Program and retention of HMGP, as did NEMA's testimony, which also called attention to concerns about the competitive program and specifically called for bill language to restore HMGP to the 15% level.

## Repetitive Flood Losses

H.R. 253, the legislation sponsored by Doug Bereuter (R-NE) and Earl Blumenauer (D-OR) to provide for offers of mitigation assistance in cases of repetitive claims, is awaiting consideration on the House floor.

*[continued on page 6]*

In response to concerns raised by others in Congress, the measure now includes an appeal process. The bill also reauthorizes the NFIP for five years. While supporting the bill and the need to address the repetitive loss problem, the ASFPM has expressed concern about some elements of the bill that could be difficult to administer (such as several definitions of repetitive loss) and about the lack of specific changes to improve the functioning of the Increased Cost of Compliance program.

The Senate Banking Committee's Economic Policy Subcommittee had to postpone the hearing that had been scheduled for September 24 due to other business having been held up by the hurricane and the shutdown of the federal government for two days. It now appears that the committee will propose legislation this fall to reauthorize the NFIP for one year and will delay hearings on repetitive loss until February or March, during the second session of this Congress.

### **Water Resources Development Act 2003**

WRDA 2003 (H.R. 2557) was passed by the House on September 24 and has been referred to the Senate Committee on Environment and Public Works. As passed, the bill includes the requirement for developing and implementing a coordinated process for expediting environmental reviews of proposed water resources projects. It also establishes a peer review procedure for certain studies initiated within four years of enactment and certain ongoing studies that are early in the process. After 4½ years, the Chief of Engineers must report to Congress on the experience with peer reviews.

The specifics are detailed in the report that accompanies the bill, H. Rept. 108-265.

—*Meredith R. Inderfurth, Washington Liaison*  
*Rebecca Quinn, Legislative Officer*

All referenced legislation and committee reports can be viewed at <http://thomas.loc.gov>.

### **WIN-WIN FOR TRANSPORTATION AND WETLANDS PROTECTION**

The Transportation Equity Act for the 21st Century, enacted in 1998, established a preference for mitigation banking to compensate for unavoidable losses to wetlands or other natural habitat caused by transportation projects that receive federal assistance. Mitigation banking is a system for balancing wetland losses with wetland gains. In this process, wetlands are restored, improved, or created by cooperative efforts, usually with pooled funds (wetlands banking projects are eligible for federal funding support). The “bank” has an account manager—often an inter-agency committee—that determines wetland “credits” based on the quality or capacity of the “new” wetlands.

In July, three federal agencies (the Federal Highway Administration, the Environmental Protection Agency, and the U.S. Army Corps of Engineers) issued new guidance for implementing the preference for mitigation banking established in the Act. The new guidance will help field personnel and the sponsors of federal-aid highway projects by clarifying the factors to be considered in implementing that preference, and simplifying the process.

The guidance is a step in the National Wetlands Mitigation Action Plan to achieve “no net loss” of wetlands through several government programs, including the Clean Water Act Section 404 and various non-regulatory and private initiatives. The action plan emphasizes a watershed approach to mitigation based on replacement of impacted or lost aquatic functions and values. It commits the agencies to develop additional guidance for better mitigation and the use of vegetated buffers and preservation.

>>> *Federal Guidance on the Use of the TEA-21 Preference for Mitigation Banking* is available on the Federal Highway Administration website at [http://www.fhwa.dot.gov/environment/wetland/wet\\_guid.htm](http://www.fhwa.dot.gov/environment/wetland/wet_guid.htm).

### **CORPS PONDERES REORGANIZATION**

The U.S. Army Corps of Engineers has released a draft reorganization plan that it hopes to begin implementing in October. Lt. Gen. Robert B. Flowers, Chief of Engineers, has headed up the effort, underway since early 2003, to find ways to improve operations throughout the agency. Under the plan, the Corps would be divided into eight “regional business centers,” each promoting nine lines of services ranging from navigation and flood control to recreation and environmental restoration. The business centers would solicit business and make most decisions, streamlining the current practice in which Congress plays a major role in the selection, funding, and timing of projects.

>>> The 98-page plan is available at <http://www.hq.usace.army.mil/stakeholders/>.

### **SO DOES NRCS**

The Natural Resources Conservation Service (NRCS) is proposing a reorganization to improve its operational, technology support, and resource assessment functions and strengthen its ability to help farmers and ranchers reach conservation goals and offer them the latest science-based technologies. The reorganization will involve employees now assigned to Institutes, Regional Offices, Divisions in National Headquarters, and those in Cooperating Scientists positions. A website at <http://www.nrcs.usda.gov/about/reorg/> will give updates.

# CLIMATE CHANGE TO HAVE DRASTIC IMPACTS FOR BOSTON, MASSACHUSETTS

Research by a team of civil engineers and geographers shows that over the next century, damage to residential, commercial, and industrial buildings and their contents in metropolitan Boston could exceed \$20 billion, depending on how the city responds to rising sea levels. Global climate change—with its melting glaciers, melting polar ice caps, and thermal expansion of the oceans, coupled with the natural “sinking” of land—has raised sea levels to threaten Boston, New York City, Los Angeles, New Orleans, and other coastal cities. The findings were presented at the annual meeting of the American Association for the Advancement of Science. In their work, funded by the Environmental Protection Agency, the scientists examined current local coastal flood data, the impact of rising sea levels, and the continuing commercial and residential development along metro Boston’s coastline. Because of rising sea levels, the same-sized wave that normally would swamp the mapped 100-year floodplain in Boston will soon become high enough to overtake the 500-year floodplain.

The team presented three scenarios of how Boston could respond to the change of sea level, and calculated both the cost of the response and the cost of repairing subsequent damage (see below). They noted that it is up to governments in the Boston area to decide how to deal with rising sea level and its impact on coastal development, but that it would be in the region’s best interest to take the threat very seriously.

> > > More information is available at <http://www.tufts.edu/tie/tci/pdf/Kirshen.pdf>.

## Options for Coping with Rising Sea Level in Boston, Massachusetts

Scenario	Preventive Construction Costs	Damage over the next 100 years
<b>Ride It Out</b>	\$ 0	\$ 20 billion
<b>Build-Your-Way-Out</b>	\$ 3.5 billion	\$ 5.9 billion
<b>Green (Planned Adaptation)</b>	\$ 1.8 billion	\$ 4.7 billion

**The “Ride-It-Out” Scenario**—This approach would mean that over the next 100 years Boston would continue development in floodplains as it does now, and would repair storm damage as it occurs to return buildings to their original condition. Using the team’s economic model of development along the waterfront and expected flood damage over the next century, this response would cost \$20 billion in repairs. Due to sea level rise, the size of the area flooded will more than triple over the next 100 years in this scenario. The \$20 billion in damage (as well as the estimates in the other scenarios) is based on a rise in sea level of 0.62 meters (2 feet) over the next 100 years, and the assumption that the area will be damaged by only one storm per year. If the sea level rises to 1.0 meter and Boston properties are damaged by more storms than the team estimates, the total property and emergency costs could easily reach \$94 billion.

**The “Build-Your-Way-Out” Scenario**—This approach would also allow current development to continue without floodproofing buildings, but would mean that after a second 100-year storm, the city would construct seawalls and bulkheads to protect coastal development. Because so much flooding will be prevented, the damage from this scenario would be \$5.9 billion over the next 100 years instead of the \$20 billion in the Ride-It-Out scenario. However, the structural construction could cost up to \$3.5 billion, and maintenance costs will be high. Seawalls would also have a negative impact on the environment, separating the beachfront from the dunes and increasing vulnerability to erosion.

**The “Green” or Planned Adaptation Scenario**—As the name suggests, this scenario would be much better for the environment. All new development in the 100-year and 500-year floodplains would need to be totally floodproofed, as would currently existing homes and commercial and industrial buildings before being sold. Retrofitting these buildings to be floodproof is assumed to be 80% effective, so the structures would only suffer 20% of the expected flood damage. Retrofitting homes would cost between \$3,500 and \$17,000, depending on location. The Green scenario would require a \$1.8 billion expenditure for floodproofing, but damage would decrease to \$4.7 billion.

# State and Local Report

## FRANKLIN, TENNESSEE, WORKS ON FLOODING AND STORMWATER

The City of Franklin, Tennessee, is working to prevent flooding while also meeting the new federal stormwater Phase II requirements under the National Pollutant Discharge Elimination System. Franklin is an historic city of 43,000 that has grown rapidly since the 1960s. The construction associated with the city's expansion has resulted in polluted runoff and increased sediment in nearby Harpeth River and its tributaries. By developing a strict stormwater ordinance, implementing a stormwater user fee, educating its citizens, and better tracking the generation and discharge locations of stormwater, the city hopes to reduce stormwater's impact on its local waterways [see *NAI* article on page 3 of this *News & Views*].

Although Franklin was already trying to address its stormwater problems before the Environmental Protection Agency finalized the Phase II rule in 1999, the rule provided an extra incentive. In early 2000 the city formed a task force to develop a strategy that would not only comply with the Phase II requirements, but also help to prevent future flooding, thereby enhancing the livability of the city. Now complete, the task force's strategy includes a stormwater ordinance; a stormwater utility fee as a revenue source; a stormwater master plan to help address flooding concerns (including an infrastructure inventory and basin modeling); and hiring of a stormwater coordinator.

The city's program includes outreach to the public, detection and elimination of illicit discharges, control of construction site and post-construction runoff, pollution prevention and good housekeeping (including establishing riparian buffers and regional detention ponds), and mapping and inventorying watersheds using a geographic information system.

The city's new stormwater utility fee is expected to generate \$1.5 million a year, to be put in a dedicated stormwater fund, which will fund the program. The costs to the public will vary: city residents will be charged \$4 monthly, while commercial entities will be charged \$4 for every 2,714 square feet of impervious surface.

>>> For more information contact Don Green, City of Franklin, 109 Third Avenue South, Franklin, TN 37064; (615) 791-3293; [dongr@franklin-gov.com](mailto:dongr@franklin-gov.com); <http://www.franklin-gov.com/engineering/STORMWATER/stormwater.htm>. For more on Phase I and II, see <http://www.epa.gov/npdes/stormwater>.

[*excerpted from Nonpoint Source News-Notes, May 2003, pp. 26-27*]

## CLOVERPORT, KENTUCKY, GETS RIVER PARK

The National Park Service's Federal Lands to Parks program transferred the Cloverport Access Site to the city of Cloverport, Kentucky, this summer, for the development of a community riverfront park. The 15.7-acre property provides a boat launching ramp, open space, and a scenic overlook on Clover Creek, a tributary of the Ohio River. The property will be further developed and operated as a picnic park and riverfront park. Valued at just over \$50,000, the property provides the only direct and sheltered boating access to the Ohio River in Cloverport.

>>> For information, contact Bill Huie, Federal Lands to Parks Program Manager, at (404) 562-3175 or [bill\\_huie@nps.gov](mailto:bill_huie@nps.gov).

## ILLINOIS FLOODPLAIN MANAGEMENT GUIDES ONLINE

The Illinois Department of Natural Resources' Office of Water Resources has placed two basic guides for floodplain managers on its website. The "Quick Guide," which has been out in hard copy, offers illustrated summary pages on a variety of mapping and regulatory topics. "Floodplain Management Resource Guide for Illinois Communities" lists state and federal agencies and private and non-profit organizations that can provide financial and technical assistance to communities. There is a key to identify eligible groups for each program, e.g., local government, individuals, schools, etc.

>>> Both guides and more information on state regulatory programs and permits can be found at <http://dnr.state.il.us/owr/resman/index.htm>.

## VIRGINIA AND MICHIGAN BENEFIT FROM POST-SWANCC RULINGS

On August 5, 2003 the U.S. Court of Appeals for the Sixth Circuit decided that the U.S. Supreme Court's decision in *Solid Waste Agency of Northern Cook County v. Army Corps of Engineers*, 531 U.S. 159 (2001) (*SWANCC*), did not limit U.S. Environmental Protection Agency or Corps of Engineers' jurisdiction under the Clean Water Act to wetlands adjacent to navigable-in-fact waters, as was argued by the defendant in the case. In its newly issued ruling in *United States v. John A. Rapanos*, the Sixth Circuit explicitly followed the Fourth Circuit's recent decision in *United States v.*

[*continued on page 9*]



*Deaton*, 332 F.3d 698 (4th Cir., 2003), and held that because there exists a hydrological connection between the wetlands in question and navigable waters (the Kawkawlin River), there was an ample nexus to establish federal jurisdiction. The Sixth Circuit also held that *SWANCC* was a narrow holding that applied only to whether the Migratory Bird Rule could be used as the sole basis for determining that a pond was a “water of the United States.” The decision has enormous practical significance in the post-*SWANCC* debate; the Michigan Department of Environmental Quality estimated that limiting wetland jurisdiction in the manner argued for by the defendant would have removed from federal regulation over 80% of the state’s remaining wetlands.

> > > The decision is posted at <http://pacer.ca6.uscourts.gov/cgi-bin/getopn.pl?OPINION=03a0268p.06>.

In mid-September, the U.S. Court of Appeals for the Fourth Circuit rejected arguments that the State of Virginia lacks authority to regulate certain kinds of nontidal wetlands. The state had enacted a law in 2000 to better conserve the low-lying forests and fields. In *Treacy v. Newdunn Associates* (No. 02-1480) the circuit court reversed an earlier ruling in the case (centering on a 43-acre tract in Newport News known as Newdunn) in which the judge said the Corps could not require permits and compensation for development of Newdunn because it was too far away from any navigable waterway, and that, because the federal government lacked authority to regulate such isolated wetlands, the state did too. That ruling sent shock waves through the state environmental department, which suddenly faced the prospect that its

two-year-old program for protecting nontidal wetlands might be significantly restricted. But the appellate court in September said that that judge had misinterpreted the nexus between state and federal clean-water laws. A spokesperson for the Virginia Department of Environmental Quality expressed relief that the issue had been resolved, and that the agency could proceed with protecting the sensitive ecosystems.

> > > The full text of the opinion is available at <http://pacer.ca4.uscourts.gov/opinion.pdf/021480.P.pdf>.

## MORE PROTECTION FOR FLORIDA RIVERS

Florida’s Acquisition and Restoration Council unanimously approved in August the expansion of a 200-mile conservation corridor spanning four northeast Florida counties. The nine-member panel voted to make the addition of 153,000 acres to the Camp Blanding to Osceola National Forest Ecological Greenway a Florida Forever priority. Four major blackwater streams originate within the project, two of which are tributaries to the Santa Fe and Suwannee rivers, both designated as Outstanding Florida Waters. Eight other new projects also were approved for possible inclusion as 2003 Florida Forever priorities. Florida Forever is a 10-year, \$3 billion program to conserve environmentally sensitive, undeveloped land; restore water resources; and preserve important cultural and historic resources.

> > > Get more information at <http://www.dep.state.fl.us/secretary/comm/2003/august/0815.htm>.

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## EVEN PROTECTED AREAS NOW AT RISK

Protecting that floodplain from future development may no longer be enough. While in the past the main obstacles in conserving natural resources were getting legislation passed to establish protection, solving problems of land tenure and ownership, and locating funding, a statement issued by experts from the World Resources Institute warns that today, even existing protected areas are at risk from climate change, habitat loss and fragmentation by roads, rising sea levels, growing human populations, invasive alien species of plants and animals, and changing preferences of people.

Since the establishment of Yellowstone as the world’s first national park in 1872, there have been 102,101 protected areas established worldwide, covering 18.8 million square kilometers (an area larger than Canada, the United States, and Germany combined) and covering nearly 13% of the planet’s land area.

### Done any Retrofitting?

The U.S. Army Corps of Engineers has asked French & Associates, Ltd., to research locally funded floodproofing projects. The company will be updating the Corps’ publication, *Local Flood Proofing Programs*. If you know of any state- or locally funded elevation, floodproofing, sewer backup, small barrier, or other retrofitting projects, please contact French Wetmore or Mary Lu Wetmore at (708) 747-5273 or [FrenchAsoc@aol.com](mailto:FrenchAsoc@aol.com).

While protected areas were initially established for recreation and wildlife conservation, they have now become the last strongholds of nature as well as places of high social and economic value. As threats are increasing to almost every ecosystem, the critical resources society has sought to protect in these areas are at risk as well. Ways must be found to ensure the long-term sustainability of parks and protected areas, the scientists said.

The warning was issued in advance of the Fifth World Parks Congress, held in Durban, South Africa, in September. The congress, held once every 10 years, is the premier gathering of the world’s experts on protected areas. Its final statement and recommendations are summarized in “The Durban Accord,” at <http://www.iucn.org/themes/wcpa/wpc2003/pdfs/outputs/wpc/durbanaccord.pdf>. The text of the pre-congress statement is at <http://newsroom.wri.org/>. □

## Floodplains and the Tyranny of Small Decisions (cont.)

greater, can be expected to occur in the future. . . . To reduce vulnerability to flooding, all possible approaches . . . must be considered, . . . permanent evacuation of high-risk areas, . . .

Recommendation 24: Flood protection projects focus not only on reduction of flood damage but also on protection and enhancement of the flood plain environment. . . . Recommendation 26(a): Develop and implement comprehensive, multi-faceted plans for concurrently reducing flood damage and protecting and enhancing the natural environment; . . . (International Joint Commission, 2000)

In June 2001, the federal governments of the United States and Canada directed the IJC to monitor progress by governments in implementing the recommendations contained in *Living with the Red*. Data are just now being collected and the case described below is a good example of **not** following those recommendations.

Ralph M. Probstfield built the first rural homestead in Clay County, Minnesota, in 1868. Probstfield became a prominent local business and civic leader, serving as postmaster, assessor, treasurer, clerk, school director, Clay County commissioner (one of the first three), and Minnesota state senator (1891-93). His descendants donated the original farmstead and land to the Probstfield Farm Living History Foundation (PFLHF) in 1995. To raise revenue, the PFLHF developed plans for a 15-lot residential subdivision—Oakport Estates (later revised to 12 lots to comply with lot size requirements)—on part of its 130 acres of land along the Red River.

Although cleared of trees during settlement, the area had again become densely wooded with mature white oaks, American elm, ash, and basswood. Only a small area in the center of the planned subdivision was outside of what was then the 100-year floodplain. Today the entire subdivision, located on an outcropping peninsula with the river on three sides, is below the Corps of Engineers' suggested revised 100-year regulatory floodplain (U.S. Army Corps of Engineers and Federal Emergency Management Agency, 2003). Several feet of fill would be required to elevate houses out of the revised, regulatory floodplain.

From start to finish, such a subdivision proposal would normally need approvals for various stages and components of the project from at least the following government units: Oakport Township, Clay County, City of Moorhead, Buffalo-Red River Watershed District, Federal Emergency Management Agency, and Minnesota Department of Natural Resources.

However, the City, County, and Township each agreed to exclude what became known as the "joint powers territory" from application of their ordinances

and codes pertaining to zoning, subdivision, land use, and building regulations (DePree, 2003). The territory, which includes Oakport Estates, is to become annexed to the City of Moorhead in the year 2015.

Two or three lots in Oakport Estates were sold before the 1997 flood, but no development had occurred by then. The original buyers backed out after the flood, which completely inundated the area of the proposed subdivision with several feet of flowing flood water. The PFLHF decided not to proceed with their plans and, instead, decided to sell eight of the 12 lots to one buyer (aka "Mr. and Mrs. Buyer") who intended to build a house on two lots and maintain the other six lots in their wooded condition (at least, that was the seller's belief). In their haste, and thinking Oakport Estates could never be developed, the PFLHF failed to include any restrictions on development when they sold to the Buyers. The Buyers built their house in 2000, elevating the first floor above the existing 100-year floodplain as required by local provisions consistent with the National Flood Insurance Program standards.

In the fall of 2002, the Buyers listed the six other lots for sale with a local real estate agent, much to the surprise of PFLHF and neighbors. Neighbors asked the Oakport Joint Powers Board (OJPB) to rescind approval of the subdivision based on what happened during the 1997 flood and pending increases in the regulatory floodplain. The Board said "there's nothing we can do," (a regional euphemism for "we don't want to get involved in a controversy"), something opponents of the subdivision would hear many times over. The OJPB planner even suggested that it was an issue that should be worked out among the neighbors!

The flood of 1997 prompted the Corps to reconsider the elevation of the regulatory floodplain. In early 2003, the Corps made a preliminary draft of the revised floodplains available to the public. The regulatory floodplain in Oakport Estates was proposed to be raised by 1.4 feet, making the subdivision look even more "marginal for development" (i.e., probably not a good thing to do).

In March 2003, the OJPB approved a "developers agreement" with the Buyers for Oakport Estates. One would think they could have denied the new agreement, but they said "there's nothing we can do."

With the new developer's agreement in hand, the Buyers immediately clear-cut a large part of Oakport Estates and began shaping the land surface. Neighbors were concerned about possible flooding consequences of the installation of a road and fill for houses and sought to stop the development. It was now in the hands of the five-member Buffalo Red River Watershed District (BRRWD) Board, the permitting authority for fill and land shaping within the floodplain. Although the Buyers

*[continued on page 11]*

started moving earth without the required permit, they applied for one in May 2003. The BRRWD held a public hearing in June, at which time neighbors, one local river advocacy group, and one basin-wide non-profit water management organization expressed concern about this prospective development in the floodplain.

The permit was approved on June 23, with a 30-day appeal period. Excerpts from the minutes of the June 23 meeting reflect the stance “there’s nothing we can do.”

#### **Permit No. 03-29, Oakport Estates Subdivision.**

*VanAmburg thought that building along the river was not a good idea.* He felt the BRRWD should be a leader in addressing the regulation of housing developments along the Red River. In addition, he thought a greenspace corridor should be established along the Red River where building is not allowed. . . . He suspects that the reason building along the river has not been stopped is that there is valuable property involved. *Ellefson agreed with VanAmburg’s concerns*, but felt that the current BRRWD Rules don’t give the Board jurisdiction over building and zoning issues. He added that the Managers have to depend on the professionals who have investigated the area and think that the project will not impact surrounding property. VanAmburg stressed that just as many small local projects can ultimately help to control flooding on the Red River, the combination of many small building developments along the Red River could create problems in the floodplain. *Ellefson hoped that people buying property in the floodplain realize that their property will flood someday.* He didn’t feel it was the BRRWD’s place to tell people where to build their houses, as long as their actions don’t hurt someone else. . . .

Kloubec commented that he wasn’t at the permit meeting, but has read most of the materials Albright sent to him. *He also agreed with VanAmburg’s concerns*, but thought that in light of the current BRRWD Rules, the only choice the Board had was to approve the permit. Hanson said that it was apparent that the developer had addressed all the necessary regulations to get his permit approved, and even though *he personally agreed with many of the concerns*, as a Board member he felt it was his job to vote to approve the permit. **Motion** by Nelson to approve Permit No. 03-29. **Seconded** by Hanson. VanAmburg opposed. **Approved.**

The Buyers’ contractor installed sewer and water for the six lots within a week after the permit was approved. The access road, which required several feet of fill that will act as a 500-foot long dike, was completed shortly thereafter. This work was done knowing that the permit decision might be appealed. After discussion with two attorneys and others, neighbors opposed to the development did not appeal the decision within the 30-

day window. They felt the chances of having it overturned were slim and the cost was high.

As of September 2003, only one lot has been sold and no house construction started. Several special interest groups have shown a willingness to help stop the development, but at this point the harm to the riparian greenway has been done and the developer has a strong financial case for continuing. Development of Oakport Estates has stretched out over 8 years, 3 owners, many exceptions and revisions to plans and policies, and numerous changes in the composition of decisionmaking bodies. In short, if proposed from scratch today, Oakport Estates likely would not get out of the starting block—clearly a case of the tyranny of small decisions. Or would it? Why then is there “nothing that can be done”?

#### **The Moral of the Story**

The point is that Oakport Estates is just like many other neighborhoods along the Red River and others where the federal, state, and local governments have bought out homeowners and removed structures from the floodplain in an effort to reduce future flood damage and protect floodplain resources. But this isn’t an isolated incident: development continues to encroach on floodplain margins elsewhere in the Red River watershed.

A reference to a more familiar contemporary problem may help make the point. It is difficult to prosecute terrorists because “terrorist acts are made possible by dozens of incremental steps that individually are minor offenses” (Shishkin, 2003). It is likewise difficult to prevent socially irresponsible floodplain development because the approval process includes so many steps, decisionmakers, and allowances for exceptions, each of which seems innocuous when viewed in isolation.

#### **A Solution**

Clearly, one answer is comprehensive water management planning in society’s best interest, along with the authority to implement effective strategies. However, this suggestion is far from new. There have been endless talks, plans, and special interest groups, but little concrete action. Many socially important water management decisions remain within the purview of fractionated local government jurisdictions.

Perhaps another solution would be to force local water management decision makers to operate behind a veil of ignorance. Political philosopher John Rawls has suggested that, if decisionmakers are ignorant of where they stand and able to discount and avoid personal preferences, biases, and prejudices, they will make better decisions. Ironically, had BRRWD managers not known where the Oakport Estates project was located, the vote may have been reversed. □

*[List of references on next page]*

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U.S. Army Corps of Engineers and Federal Emergency Management Agency. 2003. *Regional Red River Flood Assessment Report: Wahpeton, North Dakota/ Breckenridge, Minnesota to Emerson, Manitoba*. St. Paul, Minn.: St. Paul District, Corps of Engineers and FEMA Regions V and VIII.

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## Publications, Software, AV & the Web

*Flood Damage Assessment and Survey of Mitigation Efforts at Stump Lake, North Dakota: A Study of a Closed-basin Lake Flood* documents the flood history of Stump Lake and rural Nelson County, assesses the flood damage that resulted from the rise of Stump Lake and the growth of rural wetlands in the county, and surveys flood mitigation efforts associated with this closed-basin flood hazard. Remote sensing image interpretation, field work, personal interviews, and compilation of data from private, county, state, and federal agencies were used to quantify the direct, indirect, and secondary damages associated with terminal lake and rural wetland flooding. The study provides a case history of a pervasive, chronic flood hazard not routinely addressed by federal flood mitigation programs. Paul E. Todhunter and Bradley C. Rundquist 2003. Natural Hazards Research and Applications Information Center, Quick Response Research Report #164. Available at <http://www.colorado.edu/hazards/qr/qr164/qr164.html>.

Turn Around Don't Drown™ is a new campaign initiated by the Federal Alliance for Safe Homes (FLASH) and the National Weather Service to teach people that flooding and driving don't mix. Each year, more deaths occur due to flooding than from any other thunderstorm-related hazard because people underestimate the force and power of water. Many of the deaths occur in automobiles as they are swept downstream. Of these drownings, many are preventable, but too many people continue to drive around the barriers that warn them that the road is flooded. The program has a website with plenty of safety tips and downloadable brochures, signs, and other outreach materials at <http://www.nws.noaa.gov/om/water/turnaround.shtml>.

The *2003 American Wetlands Conference Proceedings* are now available on the Izaak Walton League's website. The conference was a forum for volunteers, biologists, government agency representatives, policymakers, nonprofit organizations, businesses, and educators to discuss the latest trends in wetland conservation. Some of the many topics covered were the status and ecological importance of geographically isolated and ephemeral wetlands; whether or not isolated wetlands need federal protection; wetland construction, monitoring, and assessment; hands-on education; conservation development and land use planning as wetland conservation tools; and public perceptions of wetlands. Visit [http://www.iwla.org/SOS/awm/conference/2003\\_proceedings.html](http://www.iwla.org/SOS/awm/conference/2003_proceedings.html).

"What's An Estuary? Now You Know!" is the first phase of the Association of National Estuary Programs' new national outreach campaign. "What's An Estuary" was unveiled this past June in New Orleans to rave reviews from an enthusiastic group of National Estuary Program and National Estuarine Research Reserve System representatives assembled for the 2003 NEP Education and Outreach Conference. The nationwide goal of the What's An Estuary? campaign is to make "estuary" an everyday household word like "river" and "ocean," by 2005. The Estuary Campaign's kick-off was on National Estuary Day 2003, September 27. To view and download the 8-minute multimedia presentation "What's An Estuary? Now You Know!" go to <http://www.WhatsAnEstuary.com>. The website also has more information on the campaign and partnership opportunities.

“Coastal Erosion and Solutions: A Primer” profiles beach erosion and restoration projects completed over the past two decades by the author’s firm. It discusses the problem of coastal erosion in a mesoscale timeframe, which is appropriate for community planning. Sections discuss sea levels and frames of reference, coastal processes, measurement of erosion rates, erosion “signatures,” and coastal erosion defenses. The booklet includes over 30 color illustrations and dozens of references and is designed as a bridge between comprehensive textbooks and articles about erosion. Timothy W. Kana. 2003. 24 pp. Free. Copies can be requested from Coastal Services and Engineering, LLC, P.O. Box 8056, Columbia, SC 29202; [dsangster@coastalscience.com](mailto:dsangster@coastalscience.com).

[excerpted from the *Natural Hazards Observer*, September 2003, p. 21]

“Neither Temples nor Tombs: A Global Analysis of Large Dams” examines the economic, social, ecological, and human costs and benefits of large dams worldwide. The author tackles the claims on both sides of the current controversy over these symbols of the conflict between technology and sustainability. He concludes that the performance and experience of large dams is much more varied and complex than the debate would suggest. The financial and economic outcomes of large dams vary across and within projects. A sizeable number of large dams have generated far fewer benefits with much higher financial costs than were predicted at the outset of construction. But social and environmental impacts also vary widely, although negative impacts appear to predominate. Finally, although progress is being made, policy and decisionmaking processes involving large dams are still inadequate to ensure the sustainable and equitable development and management of water and energy resources and services. Sanjeev Khagram. 2003. *Environment* 45(4):28–37. Annual subscription: \$47.00. To subscribe, contact Heldref Publications, 1319 Eighteenth Street, N.W., Washington, DC 20036; (202) 296-6267; [http://www.heldref.org/html/body\\_env.html](http://www.heldref.org/html/body_env.html).

“Down Upon the Suwanee River” takes a critical look at the impacts of public and private actions to use, exploit, protect, and restore the floodplain and associated wetlands of the Suwanee River, which winds 235 miles from the Okefenokee Swamp in southeastern Georgia to the Gulf of Mexico in northern Florida. Of all major American rivers it is the least polluted and least obstructed. The author notes that, on other rivers, flood control projects such as dams and levees promote property damage by encouraging floodplain development, then failing, while on the Suwanee there’s only one kind of “flood control,” the only kind that ever worked—wetlands. Ted Williams. 2003. *Mother Jones* (September/October). Available at [http://www.motherjones.com/news/feature/2003/36/ma\\_495\\_01.html](http://www.motherjones.com/news/feature/2003/36/ma_495_01.html)

“Possible Responses to Global Climate Change: Integrating Mitigation and Adaptation” explores how the world will act in the face of global climate change, and whether the impacts will be so substantial that the global community will be forced to take collective action. The most sensible response to the possibilities embodied by climate change is a combination of interventions, including damage avoidance, mitigation, and adaptation. The authors believe that mitigation and adaptation must be combined in national and global strategies, risk reduction activities, and policy changes. The two strategies are compared in their timing, their geographical extent, and the foci of their responses. Thomas J. Wilbanks, Sally M. Kane, Paul N. Leiby, Robert D. Perlack, Chad Settle, Jason F. Shogren, and Joel B. Smith. 2002. *Environment* 44 (5). Annual subscription: \$47.00. To subscribe, contact Heldref Publications, 1319 Eighteenth Street, N.W., Washington, DC 20036; (202) 296-6267; [http://www.heldref.org/html/body\\_env.html](http://www.heldref.org/html/body_env.html).

[excerpted from the *Natural Hazards Observer*, September 2003, p. 21]

*Climate Affairs: A Primer* looks at climate, policy, and society from three broad perspectives: climate as constraint, climate as resource, and climate as hazard, and discusses climate affairs. Many aspects of climate, such as global warming and extreme events like tornadoes, hurricanes, and typhoons, are increasingly in the public eye. Governments are attempting to cope with climate variability while the number of laws and regulations relating to the atmosphere has been growing. Michael H. Glantz. 2003. 292 pp. \$40.00. Available from Island Press, 1718 Connecticut Avenue, N.W., Suite 300, Washington, D.C. 20009; (202) 232-7933; <http://www.islandpress.org/books/detail.html?cart=1059517043181590&SKU=1-55963-919-9>.

[excerpted from the *Natural Hazards Observer*, September 2003, p. 21]

# Calendar

*The Association of State Floodplain Managers maintains a list of flood-related meetings, conferences, and training at <http://www.floods.org/calendar.htm>.*

- October 8–9, 2003:** FINANCING AND IMPLEMENTING STORMWATER MANAGEMENT PROGRAMS—PHASE II, Madison, Wisconsin. Sponsored by the College of Engineering, University of Wisconsin. Contact Patrick Eagan or Diane Lange at 1-800-462-0876; [eagan@epd.engr.wisc.edu](mailto:eagan@epd.engr.wisc.edu) or [custserv@epd.engr.wisc.edu](mailto:custserv@epd.engr.wisc.edu) or see <http://epdweb.engr.wisc.edu/onsite>.
- October 20–22, 2003:** THE PRACTICE OF RESTORING NATIVE ECOSYSTEMS, Nebraska City, Nebraska. Sponsored by the National Arbor Day Foundation and *Land & Water* magazine. Call (402) 474-5655 or 1-888-448-7337 or see <http://www.arborday.org/rneconference>.
- October 20–24, 2003:** LANDSCAPE SCALE WETLAND ASSESSMENT AND MANAGEMENT: ANNUAL CONFERENCE OF THE ASSOCIATION OF STATE WETLAND MANAGERS, Nashua, New Hampshire. See <http://aswm.org/calendar/2003am/>.
- October 21–24, 2003:** FLOOD WARNING SYSTEMS, TECHNOLOGIES AND PREPAREDNESS, FIFTH NATIONAL CONFERENCE OF THE NATIONAL HYDROLOGIC WARNING COUNCIL AND 14TH CONFERENCE OF THE SOUTHWESTERN ASSOCIATION OF ALERT SYSTEMS, Dallas, Texas. Contact Dan Miller at (913) 895-6032, [dmiller@opkansas.org](mailto:dmiller@opkansas.org) or Steve Waters at (602) 506-1501, [sdw@mail.maricopa.gov](mailto:sdw@mail.maricopa.gov) or see <http://www.alertsystems.org>.
- October 21—November 6, 2003:** WESTERN WATER RIGHTS AND WATER ENGINEERING, Denver, Colorado. Sponsored by the University of Colorado at Denver Continuing Engineering Education Program. Contact Continuing Engineering Education at (303) 556-4907 or 1-877-859-7304 or see <http://www.cudenver.edu/engineer/cont>.
- October 30–31, 2003:** ECOSYSTEMS: RESTORATION & CREATION: 30TH ANNUAL CONFERENCE, Tampa, Florida. Sponsored by Hillsborough Community College. See <http://www.hccfl.edu/depts/detp/eco-conf.html>.
- November 3–6, 2003:** ANNUAL WATER RESOURCES CONFERENCE, San Diego, California. Sponsored by the American Water Resources Association. See <http://www.awra.org/meetings/California2003/index.html>.
- November 5–6, 2003:** ANNUAL CONFERENCE OF THE NEW YORK STATE FLOODPLAIN AND STORMWATER MANAGERS ASSOCIATION. Contact Bill Nechamen at (518) 402-8146 or [wsnecham@gw.dec.state.ny.us](mailto:wsnecham@gw.dec.state.ny.us).
- November 5–8, 2003:** PROTECTING OUR LAKES' LEGACY: ANNUAL SYMPOSIUM OF THE NORTH AMERICAN LAKE MANAGEMENT SOCIETY, Mashantucket, Connecticut. See <http://www.nalms.org>.
- November 10–14, 2003:** 30TH INTERNATIONAL SYMPOSIUM ON REMOTE SENSING OF THE ENVIRONMENT, Honolulu, Hawaii. See <http://www.symposia.org>.
- November 12–13, 2003:** TAKING THE LEAD IN PROPERTY LOSS REDUCTION, Orlando, Florida. IBHS Annual Congress. Sponsored by the Institute for Business and Home Safety. Contact IBHS, 4775 E. Fowler Ave., Tampa, FL 33617; (813) 286-3400 or see <http://www.ibhs.org/congress/>.
- November 13-14, 2003:** SECOND ANNUAL CONFERENCE OF THE WISCONSIN ASSOCIATION FOR FLOODPLAIN, STORMWATER AND COASTAL MANAGEMENT, Wisconsin Dells, Wisconsin. Contact Dan Cook, Conference Chair, at (414) 266-1500, [dan.cook@gasai.com](mailto:dan.cook@gasai.com), or Dave Fowler, Chair, WAFSCM at (414) 277-6368, [dfowler@mmsd.com](mailto:dfowler@mmsd.com).
- November 15–19, 2003:** ANNUAL MEETING OF THE INTERNATIONAL ASSOCIATION OF EMERGENCY MANAGERS, Orlando, Florida. Contact IAEM, 111 Park Place, Falls Church, VA 22046; (703) 538-1795; fax: (703) 241-5603; [info@iaem.com](mailto:info@iaem.com) or see <http://www.iaem.com>.

- November 16–18, 2003:** THIRD NATIONAL TOTAL MAXIMUM DAILY LOAD SCIENCE AND POLICY CONFERENCE, Chicago, Illinois. Sponsored by the Water Environment Federation, Association of State and Interstate Water Pollution Control Administrators, U.S. Environmental Protection Agency, U.S. Geological Survey, and others. See <http://www.wef.org/pdffiles/TMDL03Call.pdf>.
- November 17–19, 2003:** RESTORING STREAMS, RIPARIAN AREAS, AND FLOODPLAINS IN THE SOUTHWEST: SECOND SOUTHWEST TRAINING WORKSHOP AND SYMPOSIUM, Socorro, New Mexico. Sponsored by the U.S. Environmental Protection Agency, the U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, Natural Resources Conservation Service, and others. Contact Jon Kusler at (518) 872-1804; [aswm@aswm.org](mailto:aswm@aswm.org) or see the call for papers at <http://www.aswm.org/calendar/southwest/index2003.htm>.
- February 16–20, 2004:** EROSION CONTROL '04 CONFERENCE, Philadelphia, Pennsylvania. Sponsored by the International Erosion Control Association. Contact IECA, P.O. Box 774904, Steamboat Springs, CO 80477; (970) 879-3010; [ecinfo@ieca.org](mailto:ecinfo@ieca.org) or see <http://www.ieca.org>.
- March 3–4, 2004:** ANNUAL CONFERENCE OF THE ILLINOIS ASSOCIATION OF FLOODPLAIN AND STORMWATER MANAGERS, Tinley Park, Illinois. Abstracts are due October 31, 2003. Contact Conference Chair Sally McConkey at (217) 333-5482 or [sally@uiuc.edu](mailto:sally@uiuc.edu) or see <http://www.illinoisfloods.org/>.
- March 3–5, 2004:** PRACTICE, POLICY, AND NEW EMERGING MARKETS: 7TH NATIONAL MITIGATION BANKING CONFERENCE, New Orleans, Louisiana. Numerous public and private sponsors. Contact 1-800-726-4853 or see <http://www.mitigationbankingconference.com>.
- March 31—April 4, 2004:** TWENTY-FIRST ANNUAL CONFERENCE OF THE LOUISIANA FLOODPLAIN MANAGEMENT ASSOCIATION, Hammond, Louisiana. Contact Rodney Smith at [rocket@bayou.com](mailto:rocket@bayou.com) or Alyson Rodriguez at [arodriguez@I-55.com](mailto:arodriguez@I-55.com).
- May 16–21, 2004:** LIGHTING THE WAY TO FLOODPLAIN MANAGEMENT: TWENTY-EIGHTH ANNUAL CONFERENCE OF THE ASSOCIATION OF STATE FLOODPLAIN MANAGERS, Biloxi, Mississippi. Contact the ASFPM Executive Office, 2809 Fish Hatchery Rd., Ste. 204, Madison, WI 53713-3120; (608) 274-0123; fax: (608) 274-0696; [asfpm@floods.org](mailto:asfpm@floods.org) or see <http://www.floods.org>.
- May 17–19, 2004:** GIS AND WATER RESOURCES III, Nashville, Tennessee. Sponsored by the American Water Resources Association. Abstracts are due October 31, 2003. See <http://www.awra.org/meetings/Nashville2004/index.html>.
- June 28–30, 2004:** RIPARIAN ECOSYSTEMS AND BUFFERS: MULTI-SCALE STRUCTURE, FUNCTION, AND MANAGEMENT, Olympic Valley, California. Sponsored by the American Water Resources Association. See <http://www.awra.org/meetings/Olympic2004/summer2004.doc>.
- July 11–14, 2004:** WATERSHED 2004, Dearborn, Michigan. Sponsored by the Water Environment Federation. See <http://www.wef.org/Conferences/>.
- July 26–29, 2004:** STORMCON 2004: THE NORTH AMERICAN SURFACE WATER QUALITY CONFERENCE AND EXPOSITION, Palm Desert, California. Sponsored by Forester Communications and *Stormwater* magazine. Abstracts are due December 12, 2003. See <http://www.StormCon.com> or see [http://www.forester.net/sc\\_call.html](http://www.forester.net/sc_call.html).
- November 1–4, 2004:** ANNUAL WATER RESOURCE CONFERENCE, Orlando, Florida. Sponsored by the American Water Resources Association. See <http://www.awra.org>.
- November 6–9, 2004:** ANNUAL CONFERENCE AND EXHIBIT OF THE INTERNATIONAL ASSOCIATION OF EMERGENCY MANAGERS, Dallas, Texas. Contact IAEM, 111 Park Place, Falls Church, VA 22046; (703) 538-1795; fax: (703) 241-5603; [info@iaem.com](mailto:info@iaem.com) or see <http://www.iaem.com>.
- June 12–17, 2005:** TWENTY-NINTH ANNUAL CONFERENCE OF THE ASSOCIATION OF STATE FLOODPLAIN MANAGERS, Madison, Wisconsin. Contact the ASFPM Executive Office, 2809 Fish Hatchery Rd., Ste. 204, Madison, WI 53713-3120; (608) 274-0123; fax: (608) 274-0696; [asfpm@floods.org](mailto:asfpm@floods.org) or see <http://www.floods.org>.



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