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ASSOCIATION OF STATE FLOODPLAIN MANAGERS, INC.

FLOOD LOSS REDUCTION FOR COMMERCIAL PROPERTIES

The Institute for Business & Home Safety holds an Annual Congress on Natural Hazard Loss Reduction, which brings together professionals in the insurance industry, emergency management, government agencies, and academic institutions for the purpose of discussing the latest developments in natural hazard mitigation. A special feature of the 2002 IBHS Congress, which was held November 13-15, 2002 in New Orleans, Louisiana, was a one-day "Commercial Flood Summit," which combined public and private expertise to explore the increasing risk of flood losses to commercial properties. The state floodplain management perspective was represented by Chad Berginnis, Ohio Department of Natural Resources—Division of Water, and several presentations were by ASFPM members (see below).

Opening remarks by Bob Medeiros, Royal & SunAlliance Insurance, set the tone for the meeting:

- The insurance industry's bottom line is being affected by flooding more and more. Tropical Storm Allison and the European floods have had especially heavy impacts.
- The insurance industry uses the Federal Emergency Management Agency's flood maps; in general, they are accepted without question.
- The summit's goal is to identify issues from the perspective of both the commercial insurers and the public sector.

The Commercial Flood Summit included seven presentations and much discussion about each topic:

Tropical Storm Allison: An Aberration or Wave of the Future?—Phil LeGrone, RMS, Inc.

RMS is developing a historical catalog of selected flood events in the United States to evaluate the extent of floodplain and non-floodplain losses.

Lessons Learned from Allison: An Insurer's Perspective—Clive Goodwin, Factory Mutual Global
Flood maps make risk areas black and white, but half of Factory Mutual Global's recent losses were incurred outside of the 500-year floodplain.

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ASSESSING AND TRACKING ECOSYSTEM HEALTH

Indicators familiar to us all typically are used to describe the health of the economy—unemployment, interest rates, the fluctuations of the Dow Jones average—but the science and art of using indicators to get a sense of how the environment is doing have not been well developed to date. Two just-completed projects have advanced our ability to apply appropriate indicators to different aspects of the natural environment and thus improve the prospects for better management and preservation of its resources and functions for a variety of purposes, including flood hazard reduction.

Ecosystems Nationwide

The State of the Nation's Ecosystems: Measuring the Lands, Waters, and Living Resources of the United States, released in September, lays out a blueprint for periodic reporting on the condition and use of all of the country's ecosystems. The book lists the basic characteristics of ecosystems that should be tracked through time and provides information on current conditions and historic trends. It also identifies situations for which data do not exist or have not been assembled to support national reporting, and tells what steps need to be taken to fill in the missing pieces.

Separate chapters report on coasts and oceans, farmlands, forests, fresh waters, grasslands and shrublands, and urban and suburban areas and identify and describe how to track indicators for each of these systems. These ecosystem-specific indicators are complemented by 10 "core national indicators" that provide an aggregated view of overall conditions:

Ecosystem extent—Gains or losses in the area covered by a particular ecosystem

Fragmentation and landscape pattern—Size, shape, proximity, and distribution of ecosystems

Building blocks of life—Amounts and concentrations of vital chemicals (nitrogen, phosphorous, carbon, and oxygen)

Contaminants—Chemical contamination

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from the Chair

George Riedel

The Federal Emergency Management Agency's (FEMA's) Map Modernization Program will shape the future of flood mapping in this country, if it is properly funded and implemented. Recently, FEMA held a mapping meeting at which the Association of State Floodplain Managers (ASFPM) was represented by Alan Lulloff, Chair of the Mapping Committee; Merrie Inderfurth, Washington Liaison; and me.

The Multi-Hazard Map Modernization Off-Site Task Force Meeting was made up mostly of FEMA Regional and Headquarters staff and several representatives of organizations in the Mapping Coalition. Its purpose was to discuss different elements of FEMA's mapping implementation, because FEMA is currently evaluating how to proceed with map modernization. FEMA acknowledged that everything about the map modernization implementation was under active review.

There was considerable discussion about what was meant by "multi-hazard maps." Most people in attendance were concerned with this new terminology. The ASFPM and others pointed out that the budget

request from FEMA sought funds for Flood Map Modernization, not multi-hazard map modernization. The budget appropriations are not yet final for FY-03. I believe it would be unwise to appear to be changing the intent of the appropriation in midstream.

The current evaluation by FEMA regarding the map modernization program will, it is hoped, provide all of us with a procedure by which to move quickly with implementation when funding becomes available. The ASFPM believes strongly that a Mapping Summit is needed to assure that everyone understands the goals, processes, and end products. The ASFPM will continue to work with FEMA to try to make this event happen.

Implementing the Map Modernization project will be challenging for all of us. Mike Buckley and Matt Miller of FEMA's Hazard Mapping and Risk Assessment Division got the map modernization project off to a good start with their commitment and years of hard work. Unfortunately, neither will be available for the implementation initiative as they have both been detailed to work on other projects within FEMA. The ASFPM thanks Buckley and Miller for their dedication to the concept of improved flood hazard maps for all communities.

* * *

I want to take this opportunity to wish all ASFPM members and their families a most joyous holiday and a happy and productive new year! □

Flood Loss Reduction for Commercial Properties (cont.)

Land Use Planning: Impact of Development on Flooding—Dave Canaan, Mecklenburg County Stormwater Services

Studies done by Mecklenburg County show that the ultimate floodplain (future-conditions mapping, a 0.1-foot floodway rise, plus one foot of freeboard) will save the County \$137 million from a single 100-year flood.

Levees: Protecting our Customers—Clive Goodwin, Factory Mutual Global

Concerns about levees are real among many segments of the public and private sectors, and there is a common desire to collaborate in order to drive improvements.

FEMA Flood Maps: How to Understand Them in Today's Environment—French Wetmore, French & Associates

A primer on flood maps, their practical use, and map modernization.

Handling Water Damage Claims in a Catastrophe Environment—Thomas F. Mulroy, Royal & SunAlliance Insurance

Mold problems, including those developing after a flood, are posing serious difficulties for the insurance industry.

Dealing with Reality: Perspectives from a Floodplain Manager—Chad Berginnis, Association of State Floodplain Managers

What happens on the ground during public sector efforts to minimize flood losses.

One element of the ensuing discussion that should be of interest to floodplain managers is the way in which the commercial hazard insurance industry works in the case of large businesses—like factories, office complexes, and other big structures. For them, an NFIP policy (if there is one) is only a very small portion of their insurance coverage. To serve clients like these, the commercial insurance industry employs professional risk managers who become quite involved with the client's overall risk management process—in contrast to the more standardized procedure associated with purchase of a residential flood insurance policy. A future issue of the *News & Views* will explore this distinction and its potential importance to floodplain managers.

>>> The PowerPoint presentations from the Summit can be accessed and downloaded at http://www.ibhs.org/research_library/list.asp?id=60.

—reported by Chad Berginnis, ASFPM

NO ADVERSE IMPACT QUESTIONS & ANSWERS

This column explores the details and nationwide applicability of the ASFPM's "no adverse impact" approach to floodplain management. Your questions about NAI can be sent to the Editor at the email address on the last page.

QUESTION I am a state coordinator with lots of small rural communities with minimal resources for planning, administration, and technical expertise. How are they supposed to incorporate NAI?

ANSWER No Adverse Impact, seen as an assortment of tools or actions, can be extensively applied in communities with many resources and technical expertise and it can be applied on a smaller scale by small communities with few resources—and still be effective! Although the ultimate goal of the NAI approach is the same for every community, its application varies widely.

Let's look at some examples. Changing regulations and standards is one obvious low-cost, highly effective NAI approach that can be undertaken by communities of all sizes. For instance, one community that experienced a recent flood determined that materials stored in the floodplain near the stream bank had become a debris hazard at a downstream bridge. The community amended its floodplain regulations to require that any materials stored in the floodplain be set back from the stream bank and anchored to prevent flotation—and adverse impacts—to downstream property owners and community infrastructure (the bridge).

Infrastructure protection is perhaps the easiest and the most easily missed opportunity to incorporate the NAI strategy. In small towns with few technical resources or expertise, a simple understanding of the flood hazard and basic principles of floodplain management can result in fewer headaches and monetary losses far into the future. When a new school, wastewater treatment facility, or firehouse is being planned, local officials should work with the architect or engineer to help them locate the facility out of the identified floodplain. This begins with good site selection. What if an existing flood map only shows an approximate floodplain area at a site? Spend the money to do a detailed flood study and, if possible, construct the facility outside of the 500-year floodplain. Compared to the \$1 to \$4 million or more price of a new wastewater treatment facility, the cost of a flood study is very small. The data gained from the study could save hundreds of thousands of dollars in damage to the facility, service disruptions, and water pollution. The threat of fire is very real during a flood. What good is a fire station that is inaccessible during a flood? What are the local costs when an improperly sited school gets flooded, such as time taken off work by parents, loss of wages (teachers are not working and often school districts are among the largest employers in small communities), as well as actual flood damage to the school?

Many small communities still have old Flood Hazard Boundary Maps (FHBM, or those that have been converted to a Flood Insurance Rate Map (FIRM) by way of a letter) that may have inaccurate floodplain boundaries. Even worse, because these maps lack actual flood elevations, the community does not have the data to direct how development is elevated. An effective, but potentially costly, NAI approach would be to perform a hydrologic and hydraulic engineering analysis of the floodplain to create a new floodplain based on future-conditions hydrology and/or a no-rise floodway. A lower-cost approach, which is not totally NAI but would move the community closer to it, could be to produce a map of flooded areas by using high water marks after a significant flood as a basis for regulation. Because it is based on a large flood, the actual floodplain area will be much larger than the one shown on the FHBM or FIRM. Using this data will yield a higher level of protection for floodplain development and it will also help residents understand the regulatory requirements that are tied to the maps, because they are based on an actual flood.

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Learn More about NAI

For too long, flood losses in the United States have continued to rise. The ASFPM believes that this situation can best be remedied by adopting a broad guiding principle of "no adverse impact" (or NAI) floodplain management. Under an NAI framework, the action of one property owner within a watershed is not allowed to adversely affect the flood risks for other properties, as measured by flood stages, flood velocities, flood flows, and the potential for erosion or sedimentation, unless community-approved mitigation occurs. A community pursues NAI floodplain management through development and management plans and programs that identify the levels of impact the community believes to be acceptable, specify appropriate mitigation measures that will prevent development activity from having a net adverse effect on the rest of the watershed, and ensure that the mitigation measures are carried out effectively.

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>.

No Adverse Impact (cont.)

Finally, actions to correct existing hazards that were caused by past development should be planned for. Does a community have a condemned home in the floodplain for which there is no money for demolition? If a flood occurs, mitigation funds may be available for the community to give the owner market value for the structure and property, tear the structure down, remove the debris, and get rid of both a health hazard and a floodprone structure. On the other hand, many communities have a small town center that is vital to their sense of place and social life. But if this town center is floodprone, actual flood damage and business interruption may result in many vacant buildings. Corrective actions could include retrofitting these buildings and actually raising their interior floors above the base flood elevation. Not only are the goods inside protected, but also the businesses will likely face much smaller losses and be able to reopen sooner after a flood. Taking corrective actions such as these requires some planning and implementation time, but most states have hazard mitigation offices and/or State National Flood Insurance Program Coordinators that can help out.

These are just a few things that small communities can do to move toward reducing or eliminating adverse impacts, both now and in the future. These actions are low cost and do not take a lot of technical expertise. More importantly, they can help the community be more disaster resilient and sustainable after a flood. Small, rural communities face increasing challenges and many are seeing long-term population decline. Building sustainability in the face of flooding can help maintain a community's overall economic, environmental, and social stability. □

Assessing and Tracking Ecosystem Health (cont.)

Physical conditions—Status of such characteristics as coastal erosion or the depth to groundwater

Plants and animals—Presence and condition of native and non-native species of plants and animals

Biological communities—Condition of groups of plants and animals that form the “biological neighborhood” for other species

Plant growth and productivity—Amount of plant growth, which reflects the amount of energy entering an ecosystem and thus available to all its organisms

Production of food and fiber and use of water—Quantities of goods produced by ecosystems, such as crops, fish, livestock, timber, and water

Recreation and other services—Activities like swimming, hiking, and hunting; natural functions like plant pollination and flood reduction; also the amount of publicly accessible open space per resident.

Much of this book is of interest to floodplain managers. For example, of the indicators listed in the chapter on urban and suburban “ecosystems,” three are especially familiar and important because they can yield useful detail on the character of suburban and urban floodplains. One tracks the size of the patches of forest, shrublands, and other natural areas (such as preserved floodplains) that provide green space and wildlife habitat. A second tallies the proportion of urban and suburban land covered by asphalt, buildings, and other impervious surfaces. A third measure tracks the percentage of urban streams that are lined with vegetation, which can affect water quality, habitat, recreation, and the flood hazard.

The 276-page book is a collaboration of 150 experts from government, business, environmental organizations, and academia, led by The H. John Heinz III Center for Science, Economics and the Environment. Order for \$25.00 from Cambridge University Press at (800) 872-7423 or <http://us.cambridge.org/titles/catalogue.asp?isbn=0521525721> or download free from <http://www.heinzctr.org/ecosystems>.

Coastal Ecosystems

Although federal and state partners and other scientists have been assessing the condition of estuaries for decades, the *National Coastal Condition Report*, released in September, is the first comprehensive summary of coastal conditions using information from 1990 to 2000. The new document can be used by scientists, environmental managers, and the public to make informed decisions about the protection of coastal resources. It also intended to serve as a benchmark for analyzing the progress of coastal management programs.

The *National Coastal Condition Report* is the first federal effort to provide a comprehensive picture of the health of the nation's coastal areas, and was a coordinated effort of the Environmental Protection Agency, the National Oceanic and Atmospheric Administration, the U.S. Geological Survey, and the U.S. Fish and Wildlife Service. It summarizes the condition of ecological resources in the coastal areas of the United States as “fair to poor,” and varying from region to region. None of the coastal regions (West, Gulf, Southeast, Northeast, and Great Lakes) received a “good” rating. The report also describes several exemplary federal, state, tribal, and local programs that assess coastal ecology and water quality.

The *Report* is based on data collected from a variety of federal, state, and local sources, including samples taken from over 1,000 randomly selected sites. Researchers carefully designed the sampling to enable scientists or managers to use ecological measurements or indicators, such as types of fish, status of aquatic vegetation, and changes in coastal wetlands, to assess estuarine conditions—making it possible, for the first time, to compare estuaries across the country.

>>> The *National Coastal Condition Report* (# EPA 620/R-01/005) is free from the EPA at P.O. Box 42419, Cincinnati, OH 45242; (800) 490-9198; ncepimal@one.net or download at <http://www.epa.gov/owow/oceans/nccr/index.html>.

Washington Report

LEGISLATIVE UPDATE— WHERE WE ARE

Where we are right now is a rather confusing and unsettled place.

Budget

No budgets for Fiscal Year 2003 are in place yet for the Federal Emergency Management Agency or any of the other federal agencies with which floodplain managers work. If and when they do get their budgets acted upon by Congress and signed by the President, the fiscal year will be half over, with attendant problems for new or enhanced programs faced with using the funds wisely in a shortened period. At about the same time (February 2003) the President's budget request for FY 2004 will be announced, and the House and Senate Appropriations Committees will begin working on the new budget.

Department of Homeland Security

After having been stalled in the Senate before the election, the Homeland Security bill passed quickly during the lame duck session in November. It did not pass, however, without many concerns being expressed by various Members of Congress about some aspects of the plan for the new department, particularly the potential adverse effect on traditional, non-security related functions of some of the agencies to be included. FEMA was identified as one of those because of the importance of flexibility and relatively less bureaucracy to its success in both responding to and taking steps to mitigate natural disasters. There were indications, as the bill was passed, that many of these concerns would be revisited over the next year or two as part of an effort to "clean up" the bill. The inclusion of FEMA in the new department is stipulated in the bill, but the format has not been clearly laid out. This produces some uncertainty about future organizational structure and related matters.

National Flood Insurance Program

Congress failed to extend the authority for the National Flood Insurance Program (NFIP) before adjourning. The VA-HUD-Independent Agencies Appropriations bills did contain the reauthorization provision, but the House and Senate have not voted on them. A last-minute effort to solve the problem failed when the House declined to take up S. 13, a bill passed by the Senate simply reauthorizing the NFIP. Apparently the rationale was that there were many programs in a similar predicament

and it would, therefore, not be appropriate to act on only one. Although it is assumed that the reauthorization will be in place sometime in January or February, there is a very awkward period after the program's authority expires on December 31st when it will not be legal to sell new flood insurance policies. Although the Federal Insurance and Mitigation Administration (FIMA) has issued some guidance to deal with this, uncertainties remain and involve lenders, real estate agents, settlement attorneys, and other segments of the economy associated with the NFIP. (Specific questions should be directed to FIMA.)

Programmatic Matters

Within FEMA, personnel and other changes are affecting the flood map modernization program [*see column by George Riedel on page 2*]. The status of the Hazard Mitigation Grant Program is unclear. The Environmental Protection Agency and the Department of Justice may be affected by new interest from the White House and the Council on Environmental Quality in reinterpreting the Clean Water Act.

In Summary

So, to sum up: there is no FY '03 budget halfway through the fiscal year; the new Department of Homeland Security will involve dislocations that are as yet undefined, but inevitable; potential programmatic changes are underway at some agencies that could affect floodplain managers; and the NFIP's authority will expire December 31st with no indication of how long the expired period will last and confusion about its implications.

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

APPROPRIATIONS

Of the 13 regular annual appropriations bills, only those for Defense and Military Construction have passed and been signed into law. The others were ready for House and Senate floor consideration at the close of the 107th Congress, but were not taken up during the lame duck session. All of the affected agency budgets are functioning under a continuing resolution that funds the departments and agencies at the FY '02 level until January 11th.

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Washington Report (cont.)

When the 108th Congress convenes in January, only newly introduced bills can be considered. The House and Senate have the option of reintroducing their bills from the 107th Congress or re-writing them. At this point, it appears likely that the bills will be re-written and then re-introduced in both houses. There is a need to deal with the FY '03 appropriations expeditiously since the process of considering FY '04 budget requests will begin shortly after the Administration's FY 2004 budget request is sent to the Congress in early February. To reduce the need for House-Senate Conference negotiations following House and Senate passage of the FY '03 bills, it is likely that the bills will be re-written cooperatively between the two bodies and the White House, so that the same bills can be introduced in the House and Senate, obviating the need to resolve differences. It is as yet unclear whether these bills will be folded into an omnibus appropriations bill or dealt with separately.

Appropriations for Map Modernization and HMGP

With respect to the FY '03 budget for FEMA, the House and Senate Appropriations bills were quite different. The Senate had passed no budget resolution providing assumptions to guide the Appropriations Committee. The House had passed a resolution and, as a result, the budget ceiling for the House VA- HUD Appropriations Subcommittee was considerably lower than the recommended amounts in the Senate appropriations bill. The notable differences are that the Senate bill provided the full \$300 million requested for FEMA's Flood Map Modernization program while the House bill provided \$200 million. (The House Committee has been very supportive of flood map modernization, but was constrained this year by the budget ceilings.) The Senate bill provided \$25 million for a pilot project on the proposed national competitive pre-disaster mitigation grant program. It also stipulated that the Hazard Mitigation Grant Program (HMGP) continue at its authorized level of 15% of disaster costs in Presidentially declared disaster areas. The House, on the other hand, provided \$250 million (\$50 million under the budget request) for a pre-disaster mitigation grant proposal while reducing HMGP to 7½% of disaster costs.

While these differences would have been resolved in the House-Senate Conference Committee, it now appears that the bills will be re-written this month to facilitate quick action in the 108th Congress. It would be useful for the Appropriations Committees and their members to hear from their states about how much

HMGP has been received by the individual states. Members of Congress are always interested in learning about the use of federal funds in their states; they would certainly be interested in amounts of HMGP generated by natural disasters in their particular states. This information would help as they evaluate the potential impacts of the HMGP reduction on their ability to put mitigation plans into effect. The ASFPM has pointed out that the Disaster Mitigation Act 2000 did institute guidelines for mitigation planning and required that those plans be accepted by FIMA before the community or affected areas can qualify for HMGP dollars after a Presidentially declared disaster.

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

OTHER LEGISLATIVE NEWS

WRDA

The House Committee on Transportation and Public Works reported out a Water Resources Development Act for 2002, which was awaiting House floor consideration (H.R. 5428 and H. Rpt. 107-717) when the 107th Congress adjourned. Those interested in amending the bill to include some policy reform provisions were persuaded not to offer such amendments in committee, but instead during floor action. There was apparently some misunderstanding over this issue, which delayed House floor consideration of the bill.

Flood Forecasting

On October 29, the President signed H.R. 2486, the Inland Flood Forecasting and Warning System Act, into law (P.L. 107-253). The measure directs the National Oceanic and Atmospheric Administration to develop, test, and deploy an inland flood-warning index to enhance the accuracy and specificity of flood forecasts. Training of emergency management officials, meteorologists, and others is authorized along with outreach and education activities. The measure also provides for research and modeling for improved forecasting of coastal and estuary inland flooding influenced by tropical cyclones. In addition, NOAA is to assess long-term trends in the frequency and severity of inland flooding and how shifts in climate, development, and erosion patterns might make some regions vulnerable to escalating flood damage in the future.

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Washington Report (cont.)

Sea Grant Reauthorized

The National Sea Grant College Program Act (H.R. 3389), which extends and increases the appropriations authorization for the Sea Grant program and makes various administrative changes, was signed into law by the President (P.L. 107-299) on November 26. General Sea Grant appropriations would be authorized at \$60 million in FY '03, increasing to \$85 million by FY '08. Spending is authorized for a number of specific activities, including \$5 million annually for competitive research grants on the biology and control of non-native aquatic species and another \$5 million annually for research grants on harmful algal blooms. Rejecting the Administration's proposal to transfer Sea Grant from the National Oceanic and Atmospheric Administration to the National Science Foundation, the bill instead directs the two agencies to report to Congress on how they intend to coordinate their efforts and avoid duplication.

Dam Safety

On November 14, the Senate passed the Dam Safety and Security Act (H.R. 4727) by unanimous consent. The bill requires the Federal Emergency Management Agency to prepare a strategic plan to establish national goals, priorities, and target dates to improve dam safety. FEMA is also required to assist states in their dam safety programs, including research and training of state dam safety staff. A National Dam Safety Review Board would be established to monitor safety and advise on policy. Authorized annual appropriations for FY '03 through FY '06 include \$6 million for state dam safety grants, \$1.5 million for dam safety research, and \$500,000 for dam safety training. Having passed the House in September, the bill has now been presented for the President's approval.

Pre-Disaster Mitigation Recommendations Deadline Extended

The Senate passed a bill (S. 1632) on October 15th to extend for FY '02 the deadline for submission of state recommendations of local governments to receive financial and technical assistance for pre-disaster hazard mitigation measures under the Stafford Act. The bill also authorizes additional assistance for owners of disaster-damaged residential structures who have been unable to complete repairs with the use of insurance proceeds and loans. The measure passed by unanimous consent and is awaiting consideration by the House Committee on Transportation and Infrastructure.

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

CORPS MAY LOOK TO PRIVATE SECTOR MORE

The U.S. Army Corps of Engineers, along with the rest of the Department of the Army, is reviewing the potential for having more of its functions performed outside its own organization. The action comes as a result of Secretary of the Army Thomas White's October 4 memorandum, in which he directed that implementation plans be prepared for "privatizing, divesting . . . outsourcing . . . or transferring to other government agencies, [all] non-core functions" of the Army. Non-core functions are defined in separate documents, but include the Civil Works Program, which falls under the purview of the Corps of Engineers. In his memo White emphasized that the move toward potential privatization of some functions is in alignment both with President Bush's sweeping management initiative for better performance in government and with the Army's need to "quickly free up resources for the global war on terrorism."

While indicating full support for the privatization review, Robert Flowers, Chief of Engineers, also promised to try to "ensure the military's leadership understands the entire Corps is 'core' to the war fight, with unique capabilities that can be leveraged at home and abroad to support our forces and the ongoing war on terrorism." The fact that the Civil Works Program resides within the Corps of Engineers gives America a capability not found anywhere else in the world, he said. The Corps already makes extensive use of private contractors for its routine dredging and public works projects—activities that a few decades ago were performed almost entirely with Corps personnel and equipment.

Plans for privatizing non-core functions, obtaining exemptions, and other operational matters were to be drafted in late December, with implementation beginning as early as March 2003.

>>> More information is available at <http://www.hq.usace.army.mil/cepa/compsource/latestnews.htm>.

State and Local Report

FIFTEEN STATES GET CONSERVATION GRANTS

The U.S. Fish and Wildlife Service is awarding over \$15.7 million in grants to 15 states to conserve, restore, and protect coastal wetlands. States receiving grants for fiscal year 2003 under the National Coastal Wetlands Conservation Grant Program are Alabama, Alaska, California, Connecticut, Florida, Hawaii, Maryland, Massachusetts, New Jersey, New York, Ohio, Oregon, Texas, Virginia, and Washington.

The grants, which will help fund 21 projects, will be supplemented by \$33 million from state and private partners. The FWS makes yearly matching grants to coastal states and U.S. territories for projects involving the acquisition, restoration, or enhancement of coastal wetlands. Projects are administered for long-term conservation benefits to wildlife and habitat, and often yield public use, flood mitigation, and other benefits.

Among the projects is one by the Oregon Watershed Enhancement Board that will acquire 350 acres on Circle Creek along the Necanicum River in Clatsop County. The acquisition will expand the existing block of protected habitats to include key portions of the lower river floodplain, creating a linked network of conservation lands. It will also protect one of the largest remaining coastal spruce swamps on the Oregon coast, and provide improved habitat for at-risk salmon species, red-legged frogs, and numerous bird species. Partners with the state are the City of Seaside, the North Coast Land Conservancy, and a private landowner.

>>> For more information about the grants program, contact the National Coastal Wetlands Conservation Grant Program, U.S. Fish and Wildlife Service, 4401 North Fairfax Dr., Room 840, Arlington, VA 22203 or Division of Federal Aid, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, Room 140, Arlington, VA 22203; or see <http://www.fws.gov/cep/cwgcover.html>.

STATE LAND USE PLANNING LAWS SUMMARIZED

The Institute for Business and Home Safety (IBHS) has updated its *Summary of State Land Use Planning Laws* and released a new and expanded 2002 edition. The publication will help promote the premise that no planning is truly comprehensive until mitigation of natural hazards where development occurs is addressed, and a plan for recovery from major natural disasters is in

place where appropriate. The first edition of the *Summary* was issued in 1998, and since then IBHS has been looking at ways to heighten the priority of hazard mitigation in state planning legislation. This edition focuses more directly on natural hazards and benefits from input from the American Planning Association. The new edition was written for IBHS by Jim Schwab of the APA.

>>> Ordering information can be obtained from IBHS, 4775 East Fowler Ave., Tampa, FL 33617; (813) 286-3400; fax: (813) 286-9960; info@ibhs.org. A brief overview of the document, along with an on-line form to request a copy, can be found at http://www.ibhs.org/research_library/view.asp?id=302.

[excerpted from the Natural Hazards Observer, November 2002, p. 4]

AWARD OFFERED FOR PAPERS ON PLANNING AND FLOODS

The Institute for Business & Home Safety (IBHS) and the Association of Collegiate Schools of Planning (ACSP), are accepting entries for their annual award recognizing scholarship in land use planning and natural hazards. The winner of the \$1,000 award will be chosen from among the authors of papers presented at the ACSP conference, July 8-12, 2003, in Leuven, Belgium.

Papers may address any topic relevant to the relationship between natural hazards and land use planning, including flooding, coastal erosion, land subsidence, or other related hazard impacts that can be minimized through community, regional, or state planning. Papers should not exceed 40 pages. Undergraduate, graduate, and joint faculty/student papers are eligible. For joint faculty/student papers, the student must be the first author and designated presenter of the paper.

Abstracts of the papers are due January 13, 2003 to both the conference organizers and the awards committee. Papers selected for presentation at the conference are due April 14, 2003.

>>> For more information, contact Diana McClure at IBHS, (617) 557-5538 or see <http://www.ibhs.org/newsroom/view.asp?id=229>.

TEAM REPAIRS 70-YEAR-OLD VERMONT DAM

JoAnne Castagna
U.S. Army Corps of Engineers

In 1935, the U.S. Army Corps of Engineers oversaw the construction of Vermont's Waterbury Dam, located on the Little River in the Winooski River basin in the Town of Waterbury. Seventy years later, a Corps multi-district project team is repairing the structure so that it can continue to serve the Waterbury community.

In 1927 Vermont experienced a disastrous flood that resulted in 55 deaths and damage of \$13.5 million (1927 price level). The Waterbury Dam was one of three the Corps designed and constructed in the 1930s to protect the region from future flooding.

The Waterbury Dam was built by the Civilian Conservation Corps under the supervision of the Corps of Engineers. The CCC, a program created by President Franklin D. Roosevelt, was designed to help put people to work during the Great Depression. One of the original laborers who constructed the dam recently recalled that he was paid \$5 per week and worked 12-hour shifts, around the clock, six days a week.

The dam is one of the largest in Vermont. Its rolled earthen embankment is 187 feet high and 1,845 feet long. A reservoir next to the dam covers about 890 acres at normal summer pool level. The Corps has worked on the dam twice since its construction.

In the late 1990s, the Corps conducted tests on the dam. "Part of the dam sits on the old river gorge that may have settled, possibly creating voids in the dam," said Doug Leite of the Corps' New York District. "Excess seepage in the dam could erode the dam internally."

The State of Vermont requested assistance from the Corps to make repairs. The Corps promptly assembled a multi-district project team that includes its New York, Baltimore, and New England Districts; its North Atlantic Division; Corps Headquarters; and the State of Vermont (the project sponsor). The New York District is responsible for project management; the New England District is responsible for the economic analysis and the hydraulic and hydrological analysis as well as handling the environmental, cultural, and real estate issues; and the Baltimore District has charge of the design efforts associated with the current repairs.

The team was praised for the speed with which it assembled the necessary expertise for the \$20 million project, making it possible to break ground less than three years after the initial site visit—an almost unheard of achievement.

The repairs began in July 2002 and the project should be done in the fall of 2004. RAITO Inc., a contractor from San Leandro, California, was hired to do

the three years of repairs. Presently, J.A. McDonald, a Vermont subcontractor, is excavating a downstream section of the dam so that filter stone can be placed around the discharge pipe that runs through the dam's center. These filters will intercept and safely discharge any seepage that flows along the outside surface of the pipe that runs from the reservoir to a powerhouse on the downstream side of the dam. The powerhouse was added to the dam in 1953 and supplies about 5.5 megawatts of electricity annually to the Waterbury community.

The contractor will build a cutoff wall and six drainage wells in the river gorge below the dam over the next two years. A series of overlapping 6½-foot-diameter vertical holes will be drilled and backfilled with concrete to form the cutoff wall. This will block open seepage channels in the gorge that could be pathways for internal erosion of the embankment soils. Wells will be located just upstream of the cutoff wall to intercept and extract gorge seepage that will be blocked by the cutoff wall. Although the proposed drilling technique has been used to create cutoff walls in other dams, the unique subsurface conditions associated with the river gorge make this an especially challenging job, according to Michael Snyder of the Baltimore District.

Preserving the environment has been a top priority with the project team. The mitigation for the drawdown of the reservoir will be a bio-engineered shoreline stabilization project. Corps biologists and the Vermont Department of Forest, Parks and Recreation have noted that the turbidity (water quality) of the water coming out of the reservoir has been much better than expected, no fish kills have been observed, and other impacts to the environment have been kept to a minimum.

The reservoir is an extremely popular state-sponsored recreational facility where residents and vacationers fish, camp, swim, and boat. In recent years the water level has been lowered to relieve pressure on the dam and to allow for construction work. When repairs are completed the water level will be restored to normal. The project is expected to completely resolve the dam safety concerns and allow the community to receive once again the full benefits of the dam, reservoir, and surrounding area.

>>> For more information, contact JoAnne Castagna, New York District, U.S. Army Corps of Engineers, 26 Federal Plaza, Room 2118, New York, NY 10278-0090; (212) 264-1230.

Publications, Software, AV & the Web

Atlas of Natural Hazards in the Hawaiian Coastal Zone compiles a series of maps for both recording and communicating the history of hazards and their intensity along the Hawaiian coast. Small-scale maps show a general history of hazards on each island (tsunamis, stream flooding, high waves, storms, erosion, sea level, and volcanoes) and summarize coastal hazards in an understandable format for general use. Large-scale technical maps (1:50,000) depict coastal sections 5 to 7 miles long with color bands ranking the relative intensity of each hazard at the adjacent shoreline. Those coastal segments that have a high or very high overall hazard ranking must be viewed as especially dangerous for human use or development. A high ranking in any one of the individual hazard categories warrants cause for heightened awareness and concern for implementing specific mitigation elements. Charles H. Fletcher III, Eric E. Grossman, Bruce M. Richmond, and Ann E. Gibbs. 2002. U.S. Geological Survey Geologic Investigations Series I-2761. Available for \$38, plus shipping and handling, from USGS Information Services, Box 25286, Federal Center, Denver, CO 80225 (303) 202-4210; infoservices@usgs.gov or download in sections or as a whole document at <http://geopubs.wr.usgs.gov/I-map/i2761/>.

Banks and Fees: The Status of Off-Site Wetland Mitigation in the United States concludes that the face of mitigation banking has changed substantially over the past 10 years—from a small industry dominated by state and local governments to a quickly growing nationwide commercial enterprise dominated by entrepreneurs. The report, based on a two-year study of off-site compensatory mitigation, describes and analyzes wetland mitigation banks, in-lieu-fee mitigation, and umbrella banks, and recommends opportunities for improving their effectiveness. The Environmental Law Institute. 2002. 199 pp. \$24.99 plus shipping from ELI, 1616 P St., N.W., Suite 200, Washington, D.C. 20036; (800) 433-5120; <http://www.eli.org>. The table of contents and introduction can be downloaded at http://www.elistore.org/reports_detail.asp?ID=10695.

A Stream Corridor Protection Strategy for Local Governments is a handbook designed to help localities in the Chesapeake Bay area protect forested stream buffers and develop local watershed plans, as well as implement other components of the Chesapeake 2000 agreement. It outlines the benefits of local stream protection and describes not only how to establish an appropriate corridor and buffer but also how to manage, monitor, and maintain it. A dozen case studies from Pennsylvania, Maryland, and Virginia illustrate the concepts. Appendixes list resources and references; describe federal, regional and state programs; and cover relevant legislation and agreements. The project was funded by a grant from the Chesapeake Bay Program and the Virginia Environmental Endowment. Institute for Environmental Negotiation, Department of Urban and Environmental Planning of the School of Architecture at the University of Virginia. 2002. 72 pp. A printed copy is \$8.00 from the Institute for Environmental Negotiation, 164 Rugby Rd, P.O. Box 400179, University of Virginia, Charlottesville, VA 22904-4179; (434) 924-1970 or download from http://www.virginia.edu/~envneg/IEN_home.htm.

The National Flood Determination Association (NFDA), a nonprofit organization whose members include flood determination companies and their vendors, has set up a new website. The site gives background information on the group, its mission, goals, members, and new certification program. Visit at <http://www.floodassoc.com>.

Freshwater Inflow: Science, Policy, Management is the title of a special issue of the journal *Estuaries*, due to come out in December. It contains 18 papers that examine various aspects of these sensitive and critical ecosystems, whose roles in filtering water and absorbing storm energy are well known to floodplain managers. Most of the studies were done in the United States, but Australian and South African estuaries are also included. Copies can be ordered for \$35 (payable to the Estuarine Research Federation) from Stephen Threlkeld, Managing Editor, *Estuaries*, Dept. of Biology, University of Mississippi, University, MS 38677 or see <http://estuaries.olemiss.edu>.

Proposed Changes to FEMA's Multihazard Mitigation Programs Present Challenges is the report of the U.S. General Accounting Office of its analysis of data on the Hazard Mitigation Grant Program and Project Impact and its review of other evaluative studies of these programs. The intent was to identify the successful features of the multihazard mitigation programs and determine what some of the impacts on them would be if the proposed combined, pre-disaster mitigation program were instituted and if the Federal Emergency Management Agency were moved into the new Department of Homeland Security. Among the concerns raised by the GAO are that a competitive pre-disaster mitigation grant program could result in decreased participation by states and localities (partly because it would not exploit the post-disaster "window of opportunity" that spurs interest in mitigation); that some mitigation outreach and planning activities could be curtailed; that there could be difficulties in establishing standards for comparing the costs and benefits of proposed mitigation projects; and that an increased emphasis on preventing and preparing for terrorism

could result in less focus on natural hazard mitigation. September 2002. GAO-02-1035. One copy is free from the GAO at 441 G St., N.W., Room LM, Washington, D.C. 20548; (202) 512-6000; or a downloadable version can be accessed at <http://www.gao.gov/new.items/d021035.pdf>.

The new Standard Flood Hazard Determination (SFHD) form has been posted on the website of the Federal Emergency Management Agency. Lenders are required to use this form when determining whether the improved real property offered as collateral for security for any federally regulated or insured loan, is or will be located in a special flood hazard area in which flood insurance is available. The new form is essentially unchanged from the previous version, although minor clarifications have been made in the instructions. It can be downloaded at <http://www.fema.gov/nfip/pdf/sfhdf.pdf>.

World Disasters 2002 is this year's annual summation by the International Federation of Red Cross and Red Crescent Societies of the extent and types of losses and the preparedness and mitigation initiatives underway in disaster-prone countries worldwide. The 2002 report focuses on reducing risk and includes commentary on the best way to do that, namely, not relying on high-profile or overseas aid operations to save lives but instead making long-term investments in mitigation at the local level. One chapter is devoted to the experience in Mozambique, where over 30,000 lives were saved by local people using boats during the devastating 2000 and 2001 floods. The report presents global damage and loss data by country and continent and also according to levels of development to highlight the relationship between development and disasters. Hydro-meteorological and geophysical disasters are tracked separately; earthquakes proved to be the world's deadliest disasters in 2001 but over the decade, weather-related events accounted for 71% of deaths. 2002. 239 pp. \$25 plus shipping and handling, or download for \$20. A press release, summaries of the chapters, and order form are posted at <http://www.ifrc.org/publicat/wdr2002/>.

Calendar

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

January 6–9, 2003: COASTAL GEOTOOLS 2002, Charleston, South Carolina. Sponsored by the National Oceanic and Atmospheric Administration's Coastal Services Center. Contact Mark Jansen, NOAA Coastal Services Center, 2234 South Hobson Ave., Charleston, SC 29405-2413; (843) 740-1200; geo.tools@noaa.gov or see <http://www.csc.noaa.gov/GeoTools>.

January 27–31, 2003: RETROFITTING FLOOD-PRONE RESIDENTIAL BUILDINGS, Emergency Management Institute, Emmitsburg, Maryland. Contact EMI at 1-800-238-3358 or see <http://www.fema.gov/emi/>.

January 27–30, 2003: DIGITAL HAZARD DATA, Emergency Management Institute, Emmitsburg, Maryland. Contact EMI at 1-800-238-3358 or see <http://www.fema.gov/emi/>.

January 27–31, 2003: SOUTHEAST COASTAL OCEAN SCIENCE CONFERENCE AND WORKSHOP, Charleston, South Carolina. Sponsored by the South Carolina Sea Grant Consortium and the National Oceanic and Atmospheric Administration's Coastal Services Center. Contact Richard DeVoe, 287 Meeting St., Charleston, SC 29401; (843) 727-2078; rick.devoe@scseagrant.org or see <http://www.csc.noaa.gov/secos/>.

February 22–26, 2003: MID-YEAR MEETING OF THE NATIONAL EMERGENCY MANAGEMENT ASSOCIATION, Washington, D.C. Contact NEMA at (859) 244-8162; nema_admin@csg.org or see <http://www.nemaweb.org/index.cfm>.

February 24–28, 2003: INTERNATIONAL EROSION CONTROL ASSOCIATION 34TH ANNUAL CONFERENCE AND EXPO, Las Vegas, Nevada. Contact IECA, P.O. Box 774904, 1355 S. Lincoln Ave., Steamboat Springs, CO 80477-4904; (970) 879-3010; fax: (970) 879-8563; ecinfo@ieca.org or see <http://www.ieca.org>.

March 3–6, 2003: INTERNATIONAL CONFERENCE ON ADVANCES IN FLOOD FORECASTING IN EUROPE, Rotterdam, The Netherlands. Sponsored by WL/Delft Hydraulics and the Joint Research Center of the European Commission. Contact Bob van Kappel, WL/Delft Hydraulics, P.O. Box 177, 2600 MH Delft, The Netherlands; (31) 15-285-85-85; bob.vankappel@wldelft.nl or see <http://www.wldelft.nl>.

March 10–14, 2003: RESIDENTIAL COASTAL CONSTRUCTION, Emergency Management Institute, Emmitsburg, Maryland. Contact EMI at 1-800-238-3358 or see <http://www.fema.gov/emi/>.

March 16–23, 2003: THIRD WORLD WATER FORUM, Kyoto, Shiga, and Osaka, Japan. Sponsored by the World Water Council. Contact the Secretariat of the 3rd World Water Forum, 5th Floor 2-2-4 Kojimachi Chiyoda-ku, Tokyo 102-0083, Japan; +81-3-5212-1645; fax: +81-3-5212-1649 or see <http://www.worldwaterforum.org>.

March 31—April 4, 2003: MANAGING FLOODPLAIN DEVELOPMENT THROUGH THE NATIONAL FLOOD INSURANCE PROGRAM, Emergency Management Institute, Emmitsburg, Maryland. Contact EMI at 1-800-238-3358; <http://www.fema.gov/emi/>.

April 7–11, 2003: THE COMMUNITY RATING SYSTEM OF THE NATIONAL FLOOD INSURANCE PROGRAM, Emergency Management Institute, Emmitsburg, Maryland. Contact EMI at 1-800-238-3358 or see <http://www.fema.gov/emi/>.

April 13–16, 2003: INAUGURAL NATIONAL CONFERENCE ON COASTAL AND ESTUARINE HABITAT RESTORATION, Baltimore, Maryland. Sponsored by Restore America's Estuaries, National Oceanic and Atmospheric Administration, Natural Resources Conservation Service, Coalition to Restore Coastal Louisiana, and many others. Contact Heather Bradley, Conference Coordinator, Restore America's Estuaries, 3801 North Fairfax Dr., Ste. 53, Arlington, VA 22203; (703) 524-0248; fax: (703) 524-0287; hbradley@estuaries.org or see <http://www.estuaries.org>.

May 1–4, 2003: AMERICAN WETLANDS CONFERENCE, Minneapolis, Minnesota. Sponsored by the Izaak Walton League. Abstracts are due December 20, 2002. Contact the League at (800) 284-4952 or (301) 548-0150 x 219 or see <http://www.iwla.org/sos/awm/conference>.

May 11–16, 2003: LESSONS LEARNED, GATEWAY TO FLOOD MITIGATION—TWENTY-SEVENTH ANNUAL CONFERENCE OF THE ASSOCIATION OF STATE FLOODPLAIN MANAGERS, St. Louis, Missouri. 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 or see <http://www.floods.org/StLouis>.

May 12–15, 2003: DIGITAL HAZARD DATA, Emergency Management Institute, Emmitsburg, Maryland. Contact EMI at 1-800-238-3358 or see <http://www.fema.gov/emi/>.

May 12–15, 2003: WATER FOR A SUSTAINABLE WORLD—LIMITED SUPPLIES AND EXPANDING DEMAND, SECOND INTERNATIONAL CONFERENCE ON IRRIGATION AND DRAINAGE, Phoenix, Arizona. Sponsored by the United States Committee on Irrigation and Drainage. Contact the U.S. Committee on Irrigation and Drainage, 1616 17th St., Ste. 483, Denver, CO 80202; (303) 628-5430; fax: (303) 628-5431; stephens@uscid.org or see <http://www.uscid.org>.

May 13–15, 2003: LARGE RIVER SYSTEMS—UNDER STRESS, Cornwall, Ontario, Canada. Sponsored by the St. Lawrence River Institute of Environmental Sciences; <http://www.navcanada.ca/ncti/english/efacil.htm>.

June 8–13, 2003: SOCIETY OF WETLAND SCIENTISTS 24TH ANNUAL MEETING, New Orleans, Louisiana. Contact Lisa C. Gandy at (501) 225-1552; gandyjc@swbell.net.

Summer Institute for Conservation

The Kinship Conservation Institute is a month-long program tailored for conservationists who want to further explore the tenets of free market environmentalism and how to integrate it with their environmental work. In addition to lectures and field trips, the participants have the opportunity to develop a project specific to their conservation work, using market principles.

This year's institute will be May 29 through June 29 in Bozeman, Montana, sponsored and conducted by the Center for Free Market Environmentalism—Political Economy Research Center (PERC). They are looking for early- to mid-career conservationists who are interested in taking an intense look at how to use market approaches to solve environmental problems. This is a paid fellowship—a \$4,500 stipend, lodging, and meals, so there will be a high degree of competition. The application deadline is February 3, 2003.

>>> More information can be obtained by contacting Carol Ferrie at carol@perc.org or checking the PERC website at <http://www.kinshipconservationinstitute.org>.

- June 11–13, 2003:** WATER STEWARDSHIP: HOW ARE WE MANAGING? 56TH ANNUAL NATIONAL CWRA CONFERENCE, Vancouver, British Columbia, Canada. Sponsored by the Canadian Water Resources Association. Contact Stefan Joyce at (605) 875-6391; s_joyce@hayco.com or see <http://www.hayco.com>.
- June 16–20, 2003:** 21ST INTERNATIONAL CONGRESS ON LARGE DAMS, Montreal, Quebec, Canada. Sponsored by the Canadian Dam Association and others. Contact Lise Pinsonneault, Communications Committee, CIGB-ICOLD Montreal 2003, 75 W. Renee-Levesque Blvd., 21st Floor, Montreal, Quebec, H2T 1A4, Canada; (514) 289-4628; fax: (514) 289-4546; pinsonneault.lise@hydro.qc.ca or see <http://www.cigb-icold.org>.
- July 13–17, 2003:** COASTAL ZONE MANAGEMENT THROUGH TIME, Baltimore, Maryland. Sponsored by the National Oceanic and Atmospheric Administration's Coastal Services Center. Contact Jan Kucklick, NOAA Coastal Services Center, 2234 So. Hobson Ave., Charleston, SC 29405-2413; (843) 740-1279; Jan.Kucklick@noaa.gov or see <http://www.csc.noaa.gov/cz2003/>.
- July 28–31, 2003:** STORMCON '03, THE NORTH AMERICAN SURFACE WATER QUALITY CONFERENCE AND EXHIBITION, San Antonio, Texas. Sponsored by Forester Communications and *Stormwater* magazine. Abstracts are due December 13, 2002. For more information, see <http://www.stormcon.com>.
- August 11–15, 2003:** MANAGING FLOODPLAIN DEVELOPMENT THROUGH THE NATIONAL FLOOD INSURANCE PROGRAM, Emergency Management Institute, Emmitsburg, Maryland. Contact 1-800-238-3358; <http://www.fema.gov/emi/>.
- September 7–10, 2003:** DAM SAFETY 2003, Minneapolis, Minnesota. Sponsored by the Association of State Dam Safety Officials. Contact ASDSO at 450 Old Vine St., 2nd Floor, Lexington, KY 40507; (859) 257-5140; fax: (859) 323-1958; info@damsafety.org or see <http://www.damsafety.org/conferences.cfm?content=annual>.
- September 10–12, 2003:** SAFER SUSTAINABLE COMMUNITIES: 2003 AUSTRALIAN DISASTERS CONFERENCE, Canberra, Australia. Sponsored by Emergency Management Australia. Abstracts are due February 14, 2003. Contact EMA at P.O. Box 1020, Dickson, Australian Capital Territory 2602, Australia; 61 (0) 2 6232 4240; enquiry@einsteinandedison.com.au; http://www.ema.gov.au/fs-call_for_abstracts.html.
- September 15–19, 2003:** MANAGING FLOODPLAIN DEVELOPMENT THROUGH THE NATIONAL FLOOD INSURANCE PROGRAM, Emergency Management Institute, Emmitsburg, Maryland. Contact EMI at 1-800-238-3358; <http://www.fema.gov/emi/>.
- September 22–26, 2003:** THE COMMUNITY RATING SYSTEM OF THE NATIONAL FLOOD INSURANCE PROGRAM, Emergency Management Institute, Emmitsburg, Maryland. Call 1-800-238-3358 or see <http://www.fema.gov/emi/>.
- September 28—October 3, 2003:** RESIDENTIAL COASTAL CONSTRUCTION, Emergency Management Institute, Emmitsburg, Maryland. Contact EMI at 1-800-238-3358 or see <http://www.fema.gov/emi/>.
- November 1–4, 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 or see <http://www.iaem.com>.
- November 10–14, 2003:** 30TH INTERNATIONAL SYMPOSIUM ON REMOTE SENSING OF THE ENVIRONMENT, Honolulu, Hawaii. See <http://www.symposia.org>.
- May 16–21, 2004:** 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 or see <http://www.floods.org>.
- 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 or see <http://www.floods.org>.



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