

THE NFIP AND CLIMATE CHANGE Is Flood Risk Misrepresented by Static Maps?

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Some communities in the United States are threatened by on-the-ground changes so rapid that the Federal Emergency Management Agency flood maps and the Map Modernization Management Support (MMMS) program cannot keep pace.

The community of Fife, Washington, offers a case in point. Fife is a small community sandwiched between Seattle and Tacoma, Washington. It lies at the mouth of the Puyallup River, which has its origin in the low Cascade mountain range. As is typical of snow- and rain-dominated drainage systems, the Puyallup experiences two flood cycles—one in the winter, dominated by seasonal rains, and one in the summer that results from snow melt. The water course is largely channeled along its lower reaches (see Figure 1 on page 3).

Fife residents had long believed that the levees protected them from the river's flooding, only to be told by FEMA recently that these structures do not, in fact, offer adequate protection and that the existing FEMA flood maps do not reflect today's conditions. New maps would be required.

Engineering firms and attorneys have been hired and a fierce debate has emerged over whether the levees do offer protection and whether adjacent lands are located within a FEMA-designated floodplain. FEMA contractors are arguing that the levees are not up to standard and therefore the "protected" lands are at risk. The community and its development interests disagree, maintaining that the levees are strong and pointing to historic records that may not support map revisions. Residents are concerned that broader floodplain designations will discourage economic development. This is a drama that has been played out hundreds of times to many audiences, and one with which we are all too familiar.

However, for Fife, the flood risks are changing so rapidly that the debate would be almost comical if weren't so tragic. The Puyallup watershed is quickly losing its ability to store water, yet this fact is not part of the discussion. FEMA currently does not consider future conditions when it produces

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Musings from the Chair

Al W. Goodman, Jr., CFM

An Ode to Lonely Vigilance

Okay, I admit I can be a bit of an eccentric at times. Here I stand, sweating profusely through my woolen uniform during a small summer “living history” event in Vicksburg, and I have the remembrance of a fine example of the recognition of the concept of residual risk by Union General William T. Sherman. *[It must be the triple digit temperature and the 93% humidity—oh, that is me, not him.]* On January 1, 1863, Sherman was conducting an assault on the Americans at Haines Bluff, just northeast of Vicksburg on the Yazoo River. As heavy rain began to fall and the river to rise, Sherman reported peering up at recent watermarks on the tree trunks 10 feet above his head. He “became convinced that part of wisdom was to withdraw.” Hmm, I wonder why a Yankee general, who was the reincarnation of Attila the Hun, could grasp the concept of residual risk even when under enemy fire while many of our present-day public officials cannot do the same from the comfort of their offices.



Keeping with the theme of American history, it is generally acknowledged that the indigenous people of our nation understood floodplains and their natural and beneficial functions very well. My ancestors, the later-arriving Europeans, brought with them a different cultural philosophy—the ownership of land. This idea included an agricultural, manufacturing, trade, and transportation based society that demanded permanent structures in close proximity to water. I believe that something was definitely lost during this transition. *[Too bad I can't ditch this musket and blanket roll, heat exhaustion is setting in.]*

Floodplains aren't like other spaces on the landscape of the community. Simply peruse a countywide Flood Insurance Rate Map index panel. The “gray” smudge may seem incidental, but it equates to millions of acres on a national scale. Combine this with the statistic that, of the 115 million single-family housing units in the United States, 28% are less than 20 years old, 36% are located in the hurricane-prone South, and 24% in the floodprone Midwest, and you can see the potential risk. *[Man, its hot. I must be standing ten feet away from the sun. Where is my relief?]*

As the freshman staff of my Floodplain Management Bureau has learned, elaborate and intrinsic floodplain management programs involving earth-orbiting satellites, laptops with 5-billion-gig hard drives, digital everything, and really cool trucks are nice, but it is basic program knowledge that prevails in the field. Their baseline grasp of floodplain management is formed by an understanding of the concept of residual risk. *[That last statement brings me to the point of this diatribe.]* Why is this simple premise so important to communities, especially those protected by levees?

Here's the rub. Part of the remapping/updating of our nation's flood maps includes the certification of levees. The Federal Emergency Management Agency and its local and state mapping partners are charged by Congress to accurately recognize the flood protection capabilities of those structures. However, if a levee is found not to provide protection from a 1% chance event, the map will be drawn as though the levee were not there. This action will result in many communities' being “placed in the floodplain” or, more accurately, being properly rated for their residual risk. (Keep in mind that a building built to withstand 125 mph winds will collapse when hit by a wall of

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Michael F. Robinson 1945–2007

The world of floodplain management registered a jolting loss when Michael Robinson died September 4, 2007, while on an extended trip in the Himalayan region of India. Robinson, 61, was a respected floodplain management expert, employed as Senior Consultant at Michael Baker, Jr., Inc., but best known for his 25-year tenure with the National Flood Insurance Program at the Federal Emergency Management Agency.

A native of Ohio, Robinson attended Oberlin College and received his A.B. in history before going on to the University of Wisconsin at Madison to earn an M.S. in Water Resources Management with a specialization in Urban and Regional Planning. His professional career began in 1973 with the Minnesota Department of Natural Resources' Floodplain and Shoreland Management Programs, where he helped develop local flood damage reduction practices. He joined FEMA in Washington, D.C., in 1980, and over the years held various management and senior policy positions in developing and implementing the NFIP's floodplain management programs, policies, and regulations. Robinson authored and contributed to countless technical documents, articles, reports, and major national studies, including the National Mitigation Strategy, the NFIP Repetitive Loss Strategy, a review of Executive Order 11988 for the Office of Management and Budget, and various legislative initiatives. During 1994, he was a team leader on the committee that produced *Sharing the Challenge: Floodplain Management into the 21st Century*. He carefully reviewed and made invaluable technical contributions to every component of the massive *Evaluation of the National Flood Insurance Program*.

Robinson had a rare talent for viewing floodplain management from the broadest possible perspective while simultaneously retaining awareness of its tiniest detail; what is more, he knew how it all fits—or should fit—together and was remarkable in his ability and willingness to explain it orally or in writing, to even the most uninitiated inquirer. He could always be counted on for accurate, thoughtful, and balanced feedback. It is no exaggeration to say that his institutional knowledge and professional expertise were irreplaceable; their absence will be felt for many years to come. Beyond all that, he was a fair and inspiring boss and mentor to dozens of young professionals and a caring and funny colleague.

Robinson is survived by his wife, Kathi, and their children, Brian and Gayle. The family has assembled photographs and mementos on a website; visit it at <http://mike-robinson.memory-of.com/>.

Changing Flood Risks and the NFIP (cont.)

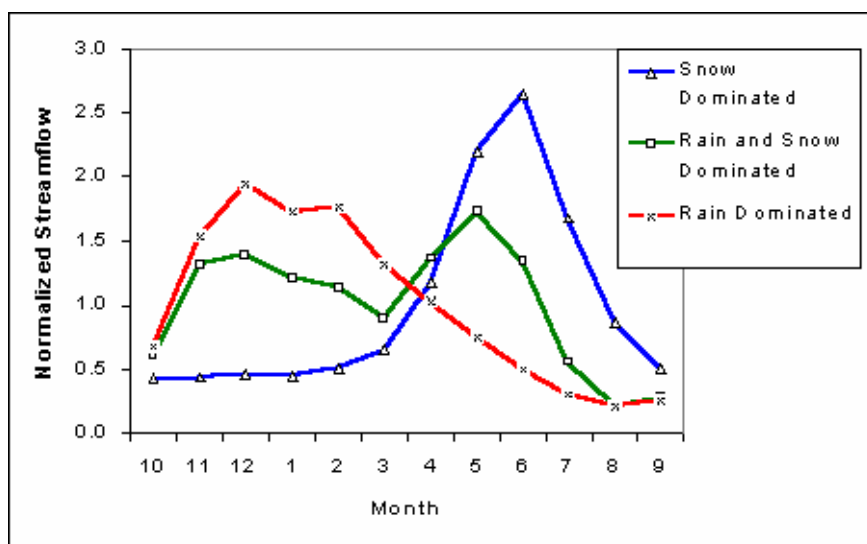


Figure 1. Seasonal hydrologic response (normalized monthly average streamflow) for three types of rivers in the Pacific Northwest: snowmelt dominated, rain dominated, and mixed (transient snow). Source: *Climate Impacts Group (2007)*.

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Changing Flood Risks and the NFIP (cont.)

flood maps for a community, and the development interests that do not have a long-term stake in Fife are not about to raise the question.

Changes come all too Soon

Fife lies in the cross-hairs of three forces of change. The combination means that today's 100-year flood elevations could easily approach annual events within the lifetime of many of Fife's existing residents.

(1) Since the Ice Age, the Puyallup has been a rain- and snow-dominated river system. But with our changing climate it is becoming a rain-dominated system. Much of the winter rainfall now stored as ice and snow in the glaciers that feed the Puyallup River will disappear in the coming years. The winter discharges (and base flood elevations) will be increasing dramatically and the summer ones will diminish (see Figure 2). And, this change is happening very, very quickly—within one generation. Estimates are that the “winter streamflow peak will begin to exceed the summer peak near the year 2020” (Ball, 2004).

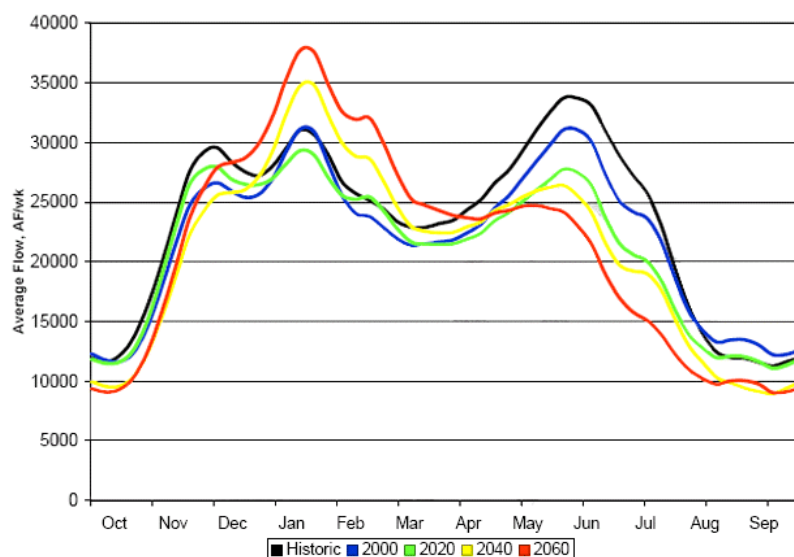


Figure 2. Historic and predicted flow of the White River (tributary to the Puyallup). A warming climate will reduce snow storage and eliminate the glaciers that now store water, dampening the historical early summer flooding and worsening the expected mid-winter floods. Source: Ball (2004).

(2) As the system becomes increasingly rain dominated, summer drought will develop as the ugly stepchild of winter flooding. Drought changes the watershed. Wetlands dry up, soil-absorbing capacity diminishes, and stressed (or even dead) vegetated riparian corridors, forests, and wetlands do not anchor the soils, promote infiltration, or moderate flows in other ways. The result will be increased flooding.

(3) Contributing to this loss of storage, home rule cities in the Puyallup watershed are allowing subdivisions to be built with the most impermeable development possible—low building density, wide concrete streets, mega houses that cover much of their lots, and massive stormwater systems that discharge directly into channelized river reaches.

Also contributing to increased downstream discharges and hence flooding is the fact that our current concept of a floodway corridor is to provide a “quick flush” of drainage from the watershed. This is intended to reduce flood damage to abutting and upstream development, but it is doing so at the expense of downstream residents and the summer water recharge needs. Wider floodways are needed to slow the water down, store it temporarily, and allow the shallow aquifers to be replenished.

It is important to note that the FEMA maps are used by local governments not only for regulatory purposes, but also to guide long-term policy decisions, such as “to levee or not to levee.” The maps also set design criteria, in that when communities do build a levee, they know how high to build it. These structures have a design life of 50 years, and a decision to proceed should be based on long-term information, particularly in an urbanizing or otherwise changing watershed.

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Changing Flood Risks and the NFIP (cont.)

Modernized Mapping can Help

The Map Modernization program has the potential of offering a solution to this dilemma. At present the MMMS products reflect current conditions. However, the method FEMA is using to model expected flood events and depict them spatially lends itself to being extremely flexible. It can be applied to illustrate a variety of discharge scenarios.

Recognizing that the NFIP stool has three legs (insurance, regulation, and, mapping), FEMA could take advantage of the flexibility of the MMMS program tools by generating two set of maps: one reflecting the 100-year floodplain for insurance rating purposes, and one reflecting future conditions that would be a far better basis for longer-term decisionmaking about local land use, economic development, and other concerns.

The future-conditions floodplain maps could be based on both natural conditions and human interventions. That is, communities could reduce the area designated as flood-prone on the future-conditions maps by applying No Adverse Impact (NAI) regulations, low-impact development (LID) practices, and other techniques to ensure that post-development discharges are less than or equal to pre-development ones. In addition, communities could make use of natural depressions, wetlands, forests, and other existing watershed features to store water and preserve or even enhance their flood-reducing natural processes.

The insurance maps would reflect current conditions, so that flood risk and the appropriate insurance rates can be determined. With the MMMS tools, they could be updated regularly—perhaps every five years. Existing floodplain ordinances that meet NFIP standards would apply. Future-conditions maps could trigger a similar but more flexible set of NFIP regulations. They could allow structures to be build below the future-conditions base flood elevation if the structures could be easily retrofitted as projected flood levels rise.

The Community Rating System offers a platform for early implementation of these concepts. It would have to incorporate standards and methods for determining future-conditions maps and the interventions that would contribute to wise management, such as low-impact development, watershed-based planning and management, wetlands preservation, purchase of developments rights, and the like.

A Very Big Deal

In closing, this problem is a big deal for many communities. Rapid alterations in land cover in the Pacific Northwest, coupled with climatic changes, are transforming watersheds at a pace not equaled since the Ice Age. Summer droughts will strain the health of wetland and riparian ecosystems. Wildfires will become a bigger problem. The Douglas fir and hemlock forests that residents enjoy for outdoor recreation—and that also reduce winter flooding—may not survive. The historic pattern of flooding is shifting and the risk is increasing. Unfortunately, counties and communities rely on the NFIP flood maps in their decisionmaking about land use and hazard management. Until those maps address future conditions for locales in rapidly changing watersheds, the program must clearly communicate the risk and the shortcomings of its existing mapping practices. Meanwhile, state and local governments must aggressively manage the discharge—over the watershed, the river corridor, and the floodplain. Water courses must be slowed down through channel lengthening, increases in friction, and natural storage. The built environment must be integrated with the flood hazard and with the natural landscape of the watershed.

Just remember what Yogi Berra said: “The future isn’t what it used to be.” Not only that, but “you’ve got to be very careful if you don’t know where you are going, because you might not get there.”

> > > King County, Washington, has produced an excellent guide for local governments that want to anticipate and manage for potential impacts from rapidly changing watersheds—exacerbated by climate change or not. See <http://www.cses.washington.edu/db/pdf/snoveretalgb574.pdf>.

References

Ball, J.A., 2004. “Impacts of Climate Change on the Proposed Lake Tapps–White River Water Supply.” Master’s Thesis, Department of Civil and Environmental Engineering, University of Washington. p. 29. http://www.tag.washington.edu/papers/papers/Ball_Thesis_DRAFT_2004.pdf

Climate Impacts Group, 2007. “*Climate Change Impacts by River Type*.” Joint Institute for the Study of the Atmosphere and Ocean, University of Washington. http://cses.washington.edu/cig/pnwc/deadend_rivertypes.shtml#figure1.

Professional Opportunities

Maine wants Floodplain Manager

The Maine Floodplain Management Program is seeking a Senior Planner to work within the State Planning Office on implementation of Maine's Map Modernization effort and other National Flood Insurance Program activities. The position will have responsibility for (1) managing project tasks and grant deliverables; (2) administering professional service contracts; (3) communicating with municipal officials and local code officers on the map update process; and (4) working with mapping project partners. Statewide travel is required. Annual salary is \$36,000 to \$50,000 and a benefits package.

Candidates should have a bachelor's degree in a related field, three years of related work experience, and skills in floodplain mapping and map reading, interpretation, and production. Preference will be given to Certified Floodplain Managers.

> > > Send a cover letter and resume by October 15, 2007 to Julie Cotnoir, Personnel Specialist, Division of Financial & Personnel Services, 74 State House Station, Augusta, Maine 04333-0074; (207) 624-7417. The announcement is at [http://www.maine.gov/bhr/state_jobs/directhire/0603\(09-13\).htm](http://www.maine.gov/bhr/state_jobs/directhire/0603(09-13).htm).

ASFPM needs Policy and Outreach Coordinator

The Association of State Floodplain Managers and the ASFPM Foundation have open a new full-time position for an energetic individual who will work to (1) enhance outreach with related organizations and entities in order to foster relationships and coordinate mutual activities, (2) develop dialogue on national policy to reflect the mission and goals of the ASFPM and the Foundation, and (3) attract/acquire funding for and help ensure timely, compliant, and high-quality completion of education and policy projects, products, and events.

This is a full-time position not necessarily based in Madison, Wisconsin. Travel is anticipated to account for about 20% of the person's time. Salary will be commensurate with experience, and a standard benefits package is included. Applications must be received by November 15, 2007.

> > > More details, a list of qualifications, and application procedures can be found on the ASFPM website at <http://www.floods.org/StatePOCs/jobs.asp>.

ISO seeks Community Rating System Specialist

Insurance Services Office, Inc. (ISO), the leading provider of information to the property/casualty insurance industry, has an opening for an ISO/CRS Specialist to cover the Gulf states (Alabama, Kentucky, Louisiana, Mississippi, and Tennessee). The position involves visiting communities to collect flood information on behalf of the National Flood Insurance Program's Community Rating System and representing ISO at meetings with community officials.

Emergency management experience and knowledge of the NFIP are desirable. Certified Floodplain Manager status is a strong plus, as is general engineering experience with strong technical knowledge. College degree desired but not required. Training will be provided. Excellent customer service, math, and verbal/written communication skills are essential. Knowledge of Microsoft Windows is required. Must be self-motivated, detail-oriented, possess a strong work ethic, and have the ability to work independently. Requires a valid driver's license and overnight travel. ISO offers a competitive salary; a solid benefits package with medical, dental, 401(k), ESOP; and a company car.

> > > To apply, send a resume as soon as possible to Mr. Willie McDonald, Insurance Services Office, Inc., 545 Washington Boulevard, Jersey City, NJ 07310, (201) 469-3001, wmcDonald@iso.com with a copy to Mr. William Trakimas, Insurance Services Office, Inc., 2033 Hamilton Ln., Carmel, IN 46032, (317) 848-2898, wtrakimas@iso.com.

LOOKING FOR POLICY & CLAIMS DATA ON THE NFIP ?

Information available on FEMA's website shows that the National Flood Insurance Program has enjoyed steady expansion of its policy base in recent years. Growth of 4.78% in the previous year brought the policy count to 5,489,966 (as of July 31, 2007). It's always interesting to look at some of the details. For example, between July 2006 and July 2007:

- Six states posted declines in their policy counts: Idaho, Minnesota, Nebraska, North Dakota, South Dakota, and West Virginia. The biggest declines were in South Dakota (-8.98%) and Nebraska (-7.88%).
- Double-digit increases were reported in six states: Delaware, New Hampshire, New Mexico, New York, Rhode Island, and Tennessee. The biggest increases were in Tennessee (27.28%) and New York (13.62%).
- Florida continues to top the list in policy count, with 39.8% of all the NFIP's policies, followed by Texas with 11.7%, and Louisiana with 9%.
- Wyoming, Alaska, and South Dakota have the smallest number of policies (0.05% or less).

To find more numbers for states and communities, check out <http://www.fema.gov/business/nfip/statistics/pcstat.shtm>. Click through the links for policy and claims information by state, then click the link for each state to see the numbers for every NFIP-participating community.

From the same page, click through the link "Statistics for the Current Month" and you'll find even more interesting data, including average claim payments by date of loss, policies by coverage type (building/contents), and the number of Preferred Risk Policies that are in-force. You may be surprised to find that PRPs make up 26% of the NFIP's policy base! Quoting from the *Flood Insurance Manual*, the PRP is a policy that "offers fixed combinations of building/contents coverage or contents-only coverage at modest, fixed premiums. The PRP is available for property located in B, C, and X Zones in Regular Program communities that meets eligibility requirements based on the property's flood loss history." ■

ASFPM EXPLORES IMPROVEMENTS TO ICC

In response to a request from FEMA, the ASFPM has submitted detailed suggestions for improving the Increased Cost of Compliance coverage that is now a component of the standard insurance policy under the National Flood Insurance Program. ICC payments are used to help pay for the expenses incurred with a damaged insured building is brought up to the local standards for flood protection. The provision has the potential for greatly alleviating the financial burden shouldered by owners of damaged property and also increasing the number of buildings that are protected nationwide. Unfortunately, ICC coverage has not been as widely used to date as it could be.

The ASFPM's suggestions include, among many others, increasing the cap on ICC payments (to \$50,000), synchronizing the handling of ICC claims with the mitigation grants process, expanding the categories of expenses that may be covered by ICC payments, and coordinating the substantial damage determinations with ICC claims procedures.

> > > The comments are posted at http://www.floods.org/PDF/ASFPM_ICC_Positions_Recommendations_0807.pdf.

Musings from the Chair (cont.)

water only 1.5 feet high.) Needless to say, this policy, certainly not the engineering statistic, will result in various levels of anxiety, concern, and excitement on the part of both our citizens and politicians.

[Ah, here comes the Corporal of the Guard. I wonder what he will make of the flying monkey that keeps buzzing me?] For this reason, people protected by levees must understand their risk, no matter how remote. Risk is commonly defined as probability times consequences. Although the probability of a levee failure can be low, the consequence to public safety and property loss is high. Behind levees, we are concerned with residual risk, which is that portion of risk remaining after the security measures of a levee have been applied.

It must be remembered that, at the time of construction, these levees were designed and built in accordance with sound engineering methods that enabled some level of local protection from flooding. However, if a flood occurs that exceeds that design, the levee will be overtopped or otherwise fail from saturation, leakage, etc. When this happens, the results are locally catastrophic. (Didn't I see something about a failed levee in the Midwest recently?) People who live behind these structures must become aware of their residual risk. As we all know, many people don't realize that they live in or have built in potentially hazardous areas. Whether this eschewing of personal responsibility can continue to be borne by the U.S. Treasury remains to be seen. That is why FEMA has "beefed up" the note it places on map panels that depict accredited levees. This note informs the public of their *risk* and indicates options to mitigate that risk. Isn't it a good and sound public policy to protect the health and welfare of the citizenry? The Executive Office of the President supported this idea with a statement on September 26, 2007, that recognized the importance of improving the quality of information and data on maps, particularly that which "shows areas of residual risk."

The real test of that prudent warning will occur when it is seen as a detriment to the local economy or when a levee or system of levees is decertified and the politicians demand a quick (and what will ultimately be proven to be a very costly) fix to what is perceived as a FEMA- originated problem. In spite of the inevitable amalgam of adverse local reactions, I urge the membership of ASFPM to support this policy and educate your communities and elected officials on the merits of this information, which will allow informed decisions about personal and property safety. It is the right thing to do.

Now that we understand residual risk, let's move on to my theory of Quantum Floodplain Management, which can be explained through the utilization of a very fundamental framework, not arbitrary in any sense, of the natural order of floodplain management . . . *[Oops . . . now I know I've gone too far. Time to find some shade and lose that monkey.]* ■

Call for Abstracts

The ASFPM is accepting abstracts for presentations at its
32nd Annual Conference

A Living River Approach to Floodplain Management
May 18–23, 2008, in Reno-Sparks, Nevada

Abstracts for presentations and for technical papers are invited on all aspects of floodplain management, from hydrology to resource restoration to education to mapping to policy and beyond.

Deadline for Abstracts is October 31, 2007.

Get more information and submission details at
<http://www.floods.org/Conferences,%20Calendar/Reno-Sparks.asp>



CALIFORNIA'S LEVEE DATABASE— A STATEWIDE FLOODPLAIN RESOURCE

by Gary Yagade, P.E., and Tom Schweitzer, P.E., CFM
PBS&J

Floodplain managers and staff at the California Department of Water Resources (DWR) will soon have a new tool to support sustainable flood management systems and thus help address the risks associated with thousands of levees located throughout the state.

The California Levee Database, a comprehensive, soon-to-be web-enabled digital database of California levees, is one part of a larger floodplain mapping project designed to enhance DWR's efforts at statewide floodplain stewardship.

The project was initiated as a joint effort between the Federal Emergency Management Agency and the DWR, and undertaken with assistance from PBS&J, a nationwide engineering firm with expertise in water resources, information system building, and program management.

Simultaneously, the U.S. Army Corps of Engineers is building the National Levee Database (NLD). Modeled after the national dam inventory of the National Dam Safety Program, the NLD will compile general information on all levees nationwide. The NLD pilot program, currently under development, includes the location information for over 2,800 miles of Corps levees. Ultimately, the Corps will amass the location data for all 14,000 miles of levees within the Corps system.

As with the national dam inventory, the Corps looks to the owners or maintaining entities, such as California DWR, to submit location and other information for inclusion into the NLD.

Leading the Way

California has a head start on building its part of the NLD. Built using GIS technology, the California Levee Database maps most of the existing levees within the state (including informal embankments serving as levees) with an emphasis on levees in California's Central Valley region. During initial development of the database, the primary focus was on specifying GIS coordinates for the levees and associated watercourses, identifying general levee locations and alignments, determining the levee's owner or sponsor, and identifying the organization responsible for levee maintenance. Additional features (stored as reference layers) include county boundaries, congressional districts, senate districts, reclamation districts, National Hydrology Dataset (NHD) stream centerlines, U.S. Geological Survey 1:24,000 quad Digital Raster Graphics, USGS Digital Ortho-Quads, and FEMA's Q3 and Digital Flood Insurance Rate Map data.

The database will also include a resource library (currently under development) that links to an index of existing water resource documents to the associated levee segments. These documents include levee-related geotechnical, hydrologic and hydraulic, and mapping data, as well as information on inspections, operations, and maintenance. The database also will include

geotechnical data such as boring log locations and data such as sand boils and seeps.

Currently, the California Levee Database is only accessible with ESRI GIS software within DWR. Local jurisdictions, reclamation districts, and other partners can get a copy of the data for review and use by request. In the near future, all California DWR staff will have access to the data through a

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Tom Schweitzer is a division manager with PBS&J, responsible for management and oversight on the California DWR Levee Database project. Reach him at (301) 210-6800 or tjschweitzer@pbsj.com.

California's Levee Database (cont.)



Heavy rains from the El Nino weather patterns in 1997 caused several levee breaks and widespread, severe flooding in California.

[photos from Robert A. Eplett/California Office of Emergency Services]



California's Levee Database (cont.)

web mapping interface. Future plans are to serve the data to a wider audience of users with access controls in place to protect sensitive data within the database.

Multi-Organizational Interfaces

As a web-enabled design, the California Levee Database is expected to promote integration with other applications. It will enhance the maintenance management of this critical infrastructure and bridge communications among multiple organizational sectors. California will maintain the information associated with public levees that do not fall within the Corps' jurisdiction. The appropriate Corps District for California will maintain data associated with levees under federal jurisdiction as part of the NLD. The DWR will share data between the groups to insure that each has the complete depiction of the levees.

In the coming months, the functional applications and interfaces of the database will be developed, with the help of PBS&J. These will enable the DWR levee database to support a consistent and comprehensive integration of data with the Corps and FEMA levee databases. This will include the prescribed bridging and structuring between the DWR levee database, the Corps' NLD, and FEMA's levee information, in direct support of national levee policy.

Overall, these databases will provide enhanced data sharing of critical information between multiple systems and will deliver the necessary integration for other specific applications currently under development by related agencies.

Strategic Directions

Ultimately, the California DWR levee database program will provide a detailed framework for levee inventories performed by these same agencies. The database will also store and identify information that is critical in determining whether existing levees will meet FEMA standards.

The California Levee Database is expected to enhance the state's ability to address the most pressing needs for maintenance, rehabilitation, and repair. It will also enable meaningful risk analysis and emergency planning as well as deliver the information required to support long-term project planning and large-scale funding strategies. The GIS-based database will be useful for the support of analyses of spending alternatives, public participation, and ultimately spending decisions that address multiple objectives in flood management with each capital investment decision.

Overall, the information provided by a statewide levee floodplain database will allow the state of California to take meaningful steps toward protecting valued resources, including critical infrastructure, essential businesses, environmental assets, and the lives and well-being of its residents. ■

SHARE YOUR LEVEE EDUCATION MATERIALS!

The FloodSmart Campaign of the National Flood Insurance Program is gathering resources and materials that floodplain managers find useful in educating local residents about the status of or flood risks behind levees.

Understanding levees is an important issue for many communities and educating local residents can be a challenge. Materials that you use to make this process easier would be fabulous to share with other floodplain managers nationwide, as well as others working on the local level.

All materials that are received will be considered for inclusion in a toolkit about levees currently in development. The toolkit will be distributed to local officials, public information officers, and a host of other local representatives across the country.

>>> Please send your materials to Amanda Benedetto at FloodSmart Marketing Team, 1111 19th Street, N.W., 10th Floor, Washington, D.C. 20036 or to info@femafloodsmart.com. Please feel free to e-mail us with any questions or comments.

State & Local Report

KING COUNTY, WASHINGTON, MANDATES CLIMATE ANALYSES

King County, Washington, Executive Ron Sims has issued an executive order—the first of its kind in the country—requiring county departments to consider climate impacts as part of their project reviews under the Washington Environmental Policy Act. The order notes that the county has a responsibility to protect its citizens from the impacts of global climate change, including more frequent and severe floods and the degradation of water-related resources, among others. The county now will require appropriate consideration of climate impacts in both public and private projects undergoing county review. The executive order becomes effective October 15, 2007. It is a companion to other recent executive orders that compel King County departments to “employ increasingly aggressive strategies to mitigate regional contributions to global warming and . . . employ innovative environmental management and coordinated strategies of land use to mitigate and adapt to global warming.”

> > > See the orders at <http://metrokc.gov/recelec/archives/policies/put7101aao.htm>.

TOWARDS A SUSTAINABLE MARYLAND

Maryland has established a new Office of Sustainability within its Department of Natural Resources. Formed as part of a larger agency restructuring, the new unit of six to eight employees will be funded and staffed with existing resources from across disciplines within DNR. The office’s mission will include working “more collaboratively and effectively” to study the impacts of climate change; develop sustainability plans; and coordinate efforts to conserve natural resources, save energy, and protect the Chesapeake Bay.

> > > More at <http://www.dnr.state.md.us/dnrnews/pressrelease2007/081007.html>.

COURT RULES AGAINST FLORIDA HOMEOWNERS

According to a September decision by the Florida Supreme Court, the state’s “valued policy law” does not require insurers to compensate policyholders for the total loss of their property if a peril not covered by the policy was partly responsible for the damage.

In the case, *Florida Farm Bureau Casualty v. Cox*, the plaintiffs owned a house that was deemed a total loss after being struck by Hurricane Ivan in 2004. They had no flood insurance policy, but held a homeowner’s policy that covered damage caused by wind but not by flood. They argued that they were entitled, under the state’s valued policy law, to a “total loss” payment under the homeowner’s policy even though the majority of the damage was caused by flood.

The question before the court was whether Florida’s 2004 law requires an insurance carrier to pay the face amount of the policy to an owner of a building deemed a total loss when the building is damaged in part by the covered peril but is also significantly damaged by an excluded peril. It does not affect insured buildings that suffer less than total damage.

In overturning two lower court rulings, the justices concluded that “the statute intends that an insurer is liable for a loss [only] by a peril covered under the policy . . . “

The decision affects hundreds of lawsuits filed after Hurricane Ivan, but does not apply to currently disputed claims because Florida’s valued policy law was amended in 2005 to make it clear that the insurer’s liability in total losses is limited to the damage caused by the covered peril. ■

Washington Report

EPA AND CORPS ISSUE GUIDANCE ON CLEAN WATER ACT JURISDICTION

The U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers have jointly issued a legal memorandum that is intended to guide their field staff in deciding when the agencies can claim jurisdiction over wetlands, streams, and rivers in order to protect them under the Clean Water Act. At issue recently had been the definition of “waters of the United States.” Over the decades, both the agencies and the Supreme Court have applied different definitions of the phrase and posited different means by which it could be determined whether a “water,” especially a wetland or a smaller stream, was considered a “water of the United States.” The new guidance, issued in June 2007, is intended to interpret the June 19, 2006, Supreme Court decision in the consolidated cases *Rapanos v. U.S.* and *Carabell v. U.S.*. [See an analysis of how the Court’s decision pertains to wetlands protection and floodplain management in the August 2006 *News & Views*, starting on page 4.]

However, environmental groups and recreationists expressed dismay at the final guidance, noting that it construes CWA jurisdiction much more narrowly than did the draft guidance, which was prepared more than a year ago, in September 2006, but was withdrawn and re-worked, reportedly after industry, agricultural, and development interests complained to the Administration. The draft guidelines, in their interpretation of “waters of the United States,” would have guaranteed Clean Water Act protection to thousands of small streams and wetlands that had been protected under the Act for decades, before Supreme Court decisions in *SWANCC* and *Rapanos* confused the jurisdictional question.

Instead, the final guidelines require agency staff to prove that a waterbody or wetland has a “significant nexus with a traditional navigable water” before jurisdiction can be asserted. The guidelines list some waters that are definitely protected, and some that are definitely not, and states that, for the rest, a case-by-case analysis must be conducted to determine whether a significant connection exists. Further, according to the Sierra Club, agencies now may only consider each stream segment and its associated wetlands in isolation—ignoring the significant combined impact of all headwater streams and associated wetlands within a watershed or region.

An unidentified Administration official was quoted in the *New York Times* as saying that, after much “hashing out” of the issues, they believed that a fairly effective policy had been issued, but no one really thinks that the issue has been laid to rest. Environmentalists called the procedure outlined in the guidance “unworkable and speculative,” indicating that further litigation, administrative delay, and confusion is sure to result.

Meanwhile, floodplain managers should note that careful application of future-conditions hydrological analysis and management can, in many cases, work to preserve the functions and resources of small streams and wetlands through state and local laws and policies, even in the absence of Clean Water Act protection.

>>> The text of the new guidance, an accompanying legal memorandum, the 2003 guidance (which is still in effect along with the more recent interpretations), questions and answers, and other relevant information can be found at the EPA’s website at <http://www.epa.gov/owow/wetlands/guidance/CWAwaters.html>. The Sierra Club’s analysis can be found at <http://www.sierraclub.org/cleanwater/recklessabandon/>. See a press release from the Natural Resources Defense Council at <http://www.nrdc.org/media/2007/070605.asp>.

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Washington Report (cont.)

GAO LOOKS AT FEDERAL MITIGATION

At the request of Congress, the U.S. Government Accountability Office undertook a survey of federal agencies with missions that include the mitigation of natural hazards, to gain a sense of the overall effort and progress. Its recent report found—not surprisingly—that the Federal Emergency Management Agency, other federal agencies, and nonfederal stakeholders have collaborated on natural hazard mitigation, but that the current approach is fragmented and does not provide a comprehensive national strategic framework for mitigation. Collaboration typically occurs only on a hazard-specific basis, after a disaster, or through informal methods.

According to the report, a comprehensive framework would help define common national goals, establish joint strategies, leverage resources, and assign responsibilities among stakeholders.

The GAO recommends, therefore, that the Administrator of FEMA, in consultation with other federal agencies, develop and maintain a national comprehensive strategic framework for mitigation that incorporates both pre- and post-disaster mitigation efforts. The framework should include items such as common mitigation goals; performance measures and reporting requirements; the role of specific activities in the overall framework; and the roles and responsibilities of federal, state, and local agencies, and nongovernmental stakeholders.

> > > Read *Natural Hazard Mitigation: Various Mitigation Efforts Exist, but Federal Efforts Do Not Provide a Comprehensive Strategic Framework*. GAO-07-403, August 2007. <http://www.gao.gov/cgi-bin/getrpt?GAO-07-403>. A summary appears at <http://www.gao.gov/highlights/d07403high.pdf>.

STREAMGAGE COALITION ON RECORD AGAIN

In mid September the ASFPM joined 38 other organizations as signatories to a letter sent to the Secretary of the Interior and the Director of the Office of Management and Budget renewing support for the U.S. Geological Survey's Cooperative Water Program and National Streamflow Information Program. The letter urges higher levels of funding for the programs in Fiscal Year 2009. It notes the nationwide need for the trustworthy data and science produced by the two USGS programs to generate understanding of streamflow, groundwater, tidal surge, precipitation, and other water resource attributes. This knowledge—and the responsible management approaches that will grow from it—is even more important in light of the United States' growing population and economy and shifts in land use.

> > > Read the letter at http://www.floods.org/PDF/Streamgage_Support_Ltr_0907.pdf.

LEGISLATIVE REPORT

Since the end of the August recess, there have been many developments in Congress on legislation to reform the National Flood Insurance Program and to provide a federal back-stop when losses due to natural disasters reach catastrophic levels.

The House of Representatives has passed its flood insurance reform bill, H.R. 3121. The Senate Banking Committee held a hearing on flood insurance reform and a Committee mark-up of that bill is scheduled for October 17th. The House Financial Services Committee has marked up, but not reported out, a bill to use the sale of catastrophe bonds to finance a federal back-stop to state catastrophe funds.

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Washington Report (cont.)

Flood Insurance Reform

In the House—The House passed the flood insurance reform bill, H.R. 3121 on September 27 by a vote of 263-146.

H.R. 3121 contains many provisions that the ASFPM sees as useful to the NFIP. In particular, it would provide \$400 million annually for an ongoing flood mapping program that would map 500-year floodplains as well as areas behind levees and below dams. Unfortunately, it also provides for a new, optional wind-and-flood policy to be offered at actuarially sound rates. The ASFPM considers the addition of such an unknown new exposure to the NFIP to be a real threat to the future stability of the NFIP itself. The testimony presented in July by Pam Pogue, National Policy Liaison, is posted on the ASFPM website. It lists the many unanswered questions associated with the new, optional insurance policy.

When the bill was considered on the House floor, a number of amendments were adopted. Some were useful, but others seem ill advised. As a result of such amendments and the inclusion of the wind-and-flood policy, the ASFPM leadership reluctantly determined that the ASFPM can no longer support the bill. The White House issued a statement indicating that the President would veto the bill if it is presented in its current form.

Thirteen amendments were adopted. Some of those are:

- A managers' amendment striking the increase in permitted borrowing authority and requiring a report on how the debt to the U.S. Treasury will be repaid in 10 years;
- The creation of an independent staff position of Flood Insurance Advocate at FEMA, which would be tasked with evaluating claims and appeals issues, recommending steps the agency could take to address issues including a permanent Office of the Advocate, and reporting to the Congress in one year;
- An anti-concurrent causation amendment requiring insurance companies to agree that their policies will not exclude coverage of wind damage simply because there is also flood damage;
- A requirement that no rate changes pursuant to issuance of updated maps be implemented until all maps in a given Corps of Engineers District are issued;
- Language altering the warning on flood maps for areas mapped as being behind flood control structures, making it weaker and clarifying that flood insurance is not required;
- An amendment requiring notification to property owners by first class mail if their property is affected by map changes; and
- An amendment requiring FEMA to consider impacts of global warming and potential impacts of global climate change and to utilize the best available climate science in assessing risk and updating flood maps.

In the Senate—The Senate Banking Committee held a hearing on October 2nd to collect views on what should be included in a flood insurance reform bill. The Committee had not developed a draft bill for comment.

Indications are, however, that the bill reported out of Committee during the last Congress (109th Congress; S. 3589) would remain the basis for a new draft bill. The previous bill included a number of categories of premium increases, forgave the debt to the Treasury of about \$17.6 billion, provided for an ongoing mapping program funded at \$400 million, and established a Catastrophe Reserve to be funded over a 10-year period from income to the Flood Insurance Fund to a level of about \$10 billion or 1% of exposure.

Former Chair Chad Berginnis testified for the ASFPM at the October 2 hearing. That testimony is also available on the ASFPM website. (It is a good, comprehensive statement and reading it is recommended.) The first panel included David Maurstad, FEMA's Assistant

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Washington Report (cont.)

Administrator for Mitigation and Orice Williams of the U.S. Government Accountability Office. The second panel was larger and included the ASFPM, the National Association of Realtors®, Property and Casualty Insurers of America, the Write Your Own Coalition, the Consumer Federation of America, and Gerry Galloway of the University of Maryland. All of the testimony can be found at the Committee website at <http://banking.senate.gov>.

A mark-up of a flood insurance bill is tentatively scheduled for October 17th, along with legislation reauthorizing the terrorism insurance program. Jack Reed (D-RI) has again introduced a bill (S. 1938) to authorize an ongoing flood mapping program, an improved version of the bill he authored in the previous Congress. It is likely that S. 1938 will be folded into a new Senate Banking Committee reform bill. It is also likely that Charles Schumer (D-NY) will offer an amendment to add the optional wind-and-flood policy provision to the Senate bill.

Unfortunately, neither the House nor Senate committees have held hearings to give particular attention to the recommendations made in the American Institutes for Research's NFIP Evaluation. There is, consequently, no reflection of those in the House bill. There seems to be some interest in pulling a few recommendations from the evaluation for proposal at the mark-up session in the Senate Banking Committee, but no comprehensive inclusion of the findings and suggestions that were developed in light of the multi-year evaluation project. The House bill would reauthorize the NFIP (which expires in September, 2008) for five years and the Senate bill is likely to do the same. A five-year reauthorization would make it unlikely that the NFIP Evaluation recommendations could be acted on legislatively for some time.

Catastrophe Insurance

The bill, H.R. 3355, is called the Homeowners Defense Act of 2007, and is designed to "ensure the availability and affordability of homeowners' insurance for catastrophic events." The bill was introduced by Ron Klein (D-FL) and Tim Mahony (D-FL) on August 3rd. The hearing was held September 6th, with mark-up a few days later. It is unclear whether or not the measure will be taken up on the House floor during this session.

The bill would establish a consortium of state-sponsored insurance funds that would pool their risk and issue bonds to finance themselves. The measure would also create a federal direct loan program as a back-stop to the state insurance funds. At the hearing, the Committee heard from a range of witnesses including the Department of the Treasury, the National Association of Insurance Commissioners, the Reinsurance Association of America, the National Realtors® Association, the Independent Insurance Agents of America, Georgetown University's Environmental Law and Policy Institute, and other insurance and risk management experts. Testimony for that hearing can be found at the Committee website at <http://banking.senate.gov>.

During the hearing, both Republican and Democrat Members of Congress pointed out the lack of inclusion of mitigation in the bill and urged its modification to encourage mitigation. The original version only referred to mitigation in two instances and in both, the word mitigation was followed by the parenthetical phrase (building codes). Although the marked-up bill has not yet been reported out of Committee, that version does include, in a section describing "qualified reinsurance programs," the following: "(B) require that any new construction, substantial rehabilitation, and renovation insured or reinsured by the program complies with applicable State or local government building, fire, and safety codes; (C) require State authorized insurance entities within that state to establish an insurance rate structure that takes into account measures to mitigate insurance losses."

It should be noted that a number of bills have been introduced dealing with catastrophe insurance, including some to establish commissions to study the problem of homeowners' insurance availability and of catastrophe insurance or reinsurance. The House has only acted on this bill, H.R. 3355. The Senate marked up a bill originally introduced by Bill Nelson (D-FL) that would create a Blue Ribbon Commission on Catastrophe Issues, but substituted new language that had the effect of eliminating some designated Commission participants, including state and local officials. Although that bill was marked up, it has not been given a number nor been reported out of Committee.

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from the ASFPM Foundation

“Floodplain Management in 2050”

The ASFPM Foundation, in cooperation with George Washington University and many corporate sponsors, is hosting the second Assembly of the Gilbert F. White National Flood Policy Forum in Washington, D.C., November 13-14. About 80 invited experts in various aspects of floodplain management, water resources, economics, public policy, and other related fields will consider the ways in which humans will need to be adjusting to the flood hazard in the year 2050. Will current adjustments such as flood insurance, elevation of buildings, and disaster relief be effective then, or should floodplain managers be working to implement different or additional measures? A final report of the Forum’s discussion and recommendation will be produced in the spring. ■

Liability of Design and Construction Professionals Analyzed

Architects, engineers, landscape architects, surveyors, and other design professionals may be held liable in a court of law for flood damage to a structure or to adjacent properties if the damage resulted from inadequate design, failure to adhere to applicable regulations or the contract specifications, or failure to meet the customary standards of care owed by the profession. However, design professionals who educate themselves about flood loss reduction techniques, exceed the minimum standard of care, discuss the flood hazard with their clients, and maintain written records of their actions in carrying out their project should be able to avoid lawsuits and also avoid being held liable. This and other, more detailed guidance for professionals in the design and development fields is set out in *Professional Liability for Construction in Flood Hazard Areas*, by Jon A. Kusler, Esq., just released in final form by the ASFPM Foundation. It is based on an analysis of recent case law, treatises, law review articles, statutes, regulations, and other relevant legal materials. The paper also briefly considers the liability of landowners, contractors, builders, banks, real estate brokers, and insurance agents.

> > > See http://www.floods.org/PDF/ASFPM_Professional_Liability_Construction.pdf.

Washington Report (cont.)

Quick Notes

WRDA—The Conference Report on the Water Resources Development Act has been accepted by both the House and Senate and sent to the White House. A Presidential veto is expected, but it seems very likely that the House and Senate would both have the votes to override it. All bill and summary information on WRDA contents can be under the bill and Conference Report numbers (H.R. 1495 and H. Rept. 110-280) at <http://thomas.loc.gov>.

Appropriations—None of the regular appropriations bills providing FY 2008 funds for the federal government has been finalized. Since FY 2008 began on October 1, 2007, a Continuing Resolution has been passed providing funds through November 16th. The impasse has a number of explanations but is substantially due to veto threats from the White House. Although the Department of Homeland Security’s appropriations bill was one of two to escape such a delay last year, it is caught up in the delay this year.

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

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

CODE COUNCIL AND FLASH TO WORK TOGETHER

The International Code Council announced last month that the nonprofit group FLASH (Federal Alliance for Safe Homes) has been selected to operate the Code Council's Foundation programs. The two organizations also are evaluating the possibilities for a potential strategic alliance and/or merger. The move aligns two nonprofits that share a similar mission to support strong, sustainable, and disaster-resistant building practices.

"Aligning the Code Council's broad base of 40,000 members with the nimble education program expertise of FLASH is a formula for success," said the Council's CEO Rick Weiland. For its part, FLASH has expressed satisfaction with the impending partnership with code enforcement officials because of their immense role in ensuring building safety nationwide.

The ICCF is a nonprofit organization dedicated to alleviating the devastating effects of natural disasters and other building tragedies by promoting ideas, methods, and technologies that encourage the construction of durable, sustainable buildings and homes. It is a subsidiary of the Code Council. For more information, go to <http://www.iccsafe.org>.

FLASH is an award-winning coalition of government agencies, professional associations, and private industry committed to strengthening homes, safeguarding families, and protecting economic well-being by promoting disaster preparedness. Visit the website at <http://www.flash.org>.

Publications, Software, AV & the Web

■ "The Importance of Protecting Vulnerable Streams and Wetlands at the Local Level," makes the case for expanded local protection of vulnerable streams and wetlands that may not be fully protected by state or federal law due to their perceived isolation from perennial or navigable waters. More than half of the stream network in the contiguous United States is made up of small headwaters that provide a host of ecological benefits. States and localities can use a range of regulatory and other approaches to preserve and enhance the natural resources and functions of these watersheds that are not otherwise protected by federal programs such as the Clean Water Act. This article summarizes state and local approaches to closing the gap. Center for Watershed Protection. 2007. Article 6 in the Wetlands and Watersheds series. Available free at <http://cwp.org.master.com/texis/master/search/+/form/wetlands.html>.

■ *Urban Stormwater Retrofit Practices* offers definitive guidance on the art and science of urban retrofitting. Nearly 80% of the nation's small urban watershed were developed without effective stormwater practices and, as a consequence, have become degraded. The key to restoring these watersheds lies in the practice of stormwater retrofitting, which involves subwatershed detective work, storm drain forensics, and imaginative design. This new manual reflects over two decades of experience in retrofitting more than 25 urban watersheds across the country. It outlines the basics of retrofits, describes the 13 unique locations where they can be found, and presents rapid methods to find, design, and deliver retrofits to meet a wide range of subwatershed objectives. Center for Watershed Protection. 2007. 400 pp. Available for free download at <http://www.cwp.org/PublicationStore/USRM.htm#usrm3>.

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Publications (cont.)

■ *Development Growth Outpacing Progress in Watershed Efforts to Restore the Chesapeake Bay* is a report to Congress from the U.S. Environmental Protection Agency's Office of Inspector General. It says that intensifying human development around the Chesapeake Bay is increasing the runoff of excess nutrients and sediment at rates faster than restoration efforts are reducing them. As a result, the EPA and its Chesapeake Bay watershed partners will not meet load reduction goals for developed lands by 2010 as established in the Chesapeake 2000 Agreement. The OIG recommends (and the Agency agreed) that the EPA show greater leadership in identifying practices that result in no net increase in sediment loads and other pollutants from new development and also help communities implement a new approach. EPA should develop a set of environmentally sensitive design practices and also adopt a regional stormwater permitting program that achieves greater nutrient and sediment reductions. 2007. U.S. Environmental Protection Agency Office of Inspector General. Report No. 2007-P-00031. 46 pp. Available at <http://www.epa.gov/oig/reports/2007/20070910-2007-P-00031.pdf>.

■ In *Climate Change: Agencies Should Develop Guidance for Addressing the Effects on Federal Land and Water Resources*, the U.S. Government Accountability Office (GAO) reported that agencies managing the nation's forests, oceans, parks, and monuments are unprepared to deal with climate change. Resource managers within the departments of Agriculture, Interior, and Commerce have "limited guidance about whether or how" to address climate change, GAO said. Three agencies within the Interior Department (the Bureau of Land Management, the National Park Service, and the Fish & Wildlife Service) have not issued specific guidance to managers on implementing a 2001 order to include climate change in agency decisions. At the same time, there is increasing evidence of climate change in the 600 million acres of public lands and 150,000 square miles of waters managed by federal agencies, ranging from melting glaciers in Glacier National Park to rising sea levels in the Florida Keys. 2007. 179 pp. GAO-07-863. Available at <http://www.gao.gov/docsearch/abstract.php?rptno=GAO-07-863>.

■ *Value of Properties in the National Flood Insurance Program* is the result of an examination of the data for 10,000 properties insured under the NFIP. It shows that a significant fraction of the subsidized policies are written for high-value properties. That fact is attributable more to the prevalence of such properties in the program than to a disproportionate allocation of subsidies to high-value properties. Even so, for some categories, subsidized properties are worth more than unsubsidized properties. The tendency toward above-average values in the NFIP is particularly evident for some subgroups of properties, notably nonprincipal residences and nonresidential properties. 2007. Congressional Budget Office. 20 pp. Available at <http://www.cbo.gov/ftpdocs/82xx/doc8256/06-25-FloodInsurance.pdf>.

■ The 2007 *Surfrider Foundation State of the Beach* report analyzes the health of beaches and coastal areas across the nation based on numerous indicators, including water quality, coastal erosion, and access to beach and surfing areas. The website has an impressive array of science-based information; analysis of state and local laws; news about beach-specific initiatives; discussion of the relationship between a positive beach experience and such attributes as water quality, sediment transport, turbidity, surge, and the presence of shoreline protection structures; and rad photos. Download the report at <http://www.surfrider.org/stateofthebeach/>.

Calendar

See more flood-related meetings, conferences, and training at
<http://www.floods.org/Conferences,%20Calendar/calendar.asp>.

October 17–19, 2007: FALL CONFERENCE OF THE ASSOCIATION OF FLOODPLAIN MANAGERS OF MISSISSIPPI/ALABAMA, Philadelphia, Mississippi. Contact Stuart Williamson at (228) 822-3903, fax: (228) 214-4014, or williamsons@cdm.com.

October 17–19, 2007: FALL CONFERENCE OF THE NEW MEXICO FLOODPLAIN MANAGEMENT ASSOCIATION, Farmington, New Mexico. Contact Les Bond at (505) 682-1359 or see <http://www.nmfma.org/>.

October 18–19, 2007: BUILDING SUCCESSFUL PARTNERSHIPS: THIRD ANNUAL CONFERENCE OF THE NEW JERSEY ASSOCIATION FOR FLOODPLAIN MANAGEMENT, Somerset, New Jersey. See <http://www.njafm.org/>.

October 18–19, 2007: ANNUAL CONFERENCE OF THE UTAH FLOODPLAIN AND STORMWATER MANAGEMENT ASSOCIATION, Midway, Utah. Contact Judy Watanabe at (801) 538-3750 or see <http://des.utah.gov/ufsma/>.

October 21–24, 2007: FALL CONFERENCE OF THE TEXAS FLOODPLAIN MANAGEMENT ASSOCIATION, Lubbock, Texas. See <http://www.tfma.org/displayconvention.cfm>.

October 22–24, 2007: FALL CONFERENCE OF THE AMERICAN SHORE & BEACH PRESERVATION ASSOCIATION, Galveston, Texas. See <http://www.asbpa.org/conferences/conferences.htm>.

October 24–25, 2007: FLOODPLAIN AND STORMWATER MANAGEMENT IN MARYLAND: THE LOCAL PERSPECTIVE, Linthicum, Maryland. Sponsored by the Maryland Association of Floodplain and Stormwater Managers. See <http://www.mafsm.org>.

October 24–26, 2007: H2O CONFERENCE, Long Beach, California. Sponsored by the California Shore and Beach Preservation Association, California Coastal Coalition, Southern California Wetlands Recovery Project, and others. See http://www.websurfer.us/coastal/h2o_2007/call_presentations.htm.

October 29—November 1, 2007: MANAGING FLOODPLAIN DEVELOPMENT THROUGH THE NATIONAL FLOOD INSURANCE PROGRAM (E273), Emergency Management Institute, Emmitsburg, Maryland. Contact EMI at (800) 238-3358 or see <http://www.training.fema.gov/EMIweb/>.

November 1–2, 2007: ECOSYSTEMS RESTORATION & CREATION, Plant City, Florida. Sponsored by Hillsborough Community College. See <http://www.hccfl.edu/depts/detp/ecoconf.htm>.

November 6–8, 2007: FOURTH ANNUAL CANADIAN RISK AND HAZARDS NETWORK SYMPOSIUM, Richmond, British Columbia. Sponsored by Justice Institute of British Columbia, Simon Fraser University, and University of British Columbia. Contact Stephanie Chang at stephanie.chang@ucb.ca or see <http://www.jibc.ca/crhnet/papers/papers.htm>.

- November 7–9, 2007:** ANNUAL CONFERENCE OF THE WISCONSIN ASSOCIATION FOR FLOODPLAIN, STORMWATER, AND COASTAL MANAGEMENT, Appleton, Wisconsin. See <http://wi.floods.org/>.
- November 7–9, 2007:** FALL CONFERENCE OF THE ARIZONA FLOODPLAIN MANAGEMENT ASSOCIATION, Grand Canyon South Rim, Arizona. See <http://azfma.org/>.
- November 8–9, 2007:** STRONGER TOGETHER: ANNUAL CONFERENCE ON PROPERTY LOSS REDUCTION, Orlando, Florida. Sponsored by the Institute for Business and Home Safety. See <http://www.ibhs.org/congress/>.
- November 11–14, 2007:** PARTNERS IN EMERGENCY MANAGEMENT: WORKING TOGETHER—IAEM 55TH ANNUAL CONFERENCE & EMEX. Reno, Nevada. Sponsored by the International Association of Emergency Managers. See <http://www.iaem.com>.
- November 14–15, 2007:** ANNUAL CONFERENCE OF THE MINNESOTA ASSOCIATION OF FLOODPLAIN MANAGERS, St. Cloud, Minnesota. See <http://www.mnafpm.org/default.htm>.
- November 14–16, 2007:** FALL FLOODPLAIN INSTITUTE, Asheville, North Carolina. Sponsored by the North Carolina Association of Floodplain Managers. See <http://www.ncafpm.org/>.
- November 27–28, 2007:** HYDRAULIC ANALYSIS OF SPILLWAYS, Albany, New York. Northeast Region Technical Seminar of the Federal Emergency Management Agency and the Association of State Dam Safety Officials. See <http://www.damsafety.org>.
- November 27–28, 2007:** EARTHQUAKE ENGINEERING FOR DAM SAFETY, Memphis, Tennessee. Southeast Region Technical Seminar of the Federal Emergency Management Agency and the Association of State Dam Safety Officials. See <http://www.damsafety.org>.
- November 27–29, 2007:** SECOND INTERNATIONAL CONFERENCE ON URBAN DISASTER REDUCTION, Taipei, Taiwan. See <http://www.ncdr.nat.gov.tw/2ICUDR/>.
- November 27–30, 2007:** TRAIN-THE-TRAINER: MANAGING FLOODPLAIN DEVELOPMENT THROUGH THE NFIP (E270), Emergency Management Institute, Emmitsburg, Maryland. Contact EMI at (800) 238-3358 or see <http://www.training.fema.gov/EMIweb/>.
- December 4–6, 2007:** RIPARIAN HABITAT JOINT VENTURE CONFERENCE, Sacramento, California. Sponsored by the California Department of Water Resources, the U.S. Fish & Wildlife Service, and many others. See <http://www.prbo.org/calpif/rhjcconference/index.htm>.
- January 2008:** EMERGENCY ACTION PLANNING FOR DAM SAFETY, San Diego, California. West Region Technical Seminar of the Federal Emergency Management Agency and the Association of State Dam Safety Officials. See <http://www.damsafety.org>.
- February 25–28, 2008:** NATIONAL FLOOD INSURANCE PROGRAM COMMUNITY RATING SYSTEM (E278), Emergency Management Institute, Emmitsburg, Maryland. Contact (800) 238-3358 or see <http://www.training.fema.gov/EMIweb/>.
- February 26–29, 2008:** 48TH ANNUAL FLOODPLAIN MANAGEMENT CONFERENCE, Wollongong, New South Wales, Australia. Sponsored by the Floodplains Management Authority and others. See <http://www.iceaustralia.com/fmawollongong/>.

- March 2008:** EARTHQUAKE ENGINEERING FOR DAM SAFETY, St. Louis, Missouri. Midwest Region Technical Seminar of the Federal Emergency Management Agency and the Association of State Dam Safety Officials. See <http://www.damsafety.org>.
- March 5–7, 2008:** THIRD TECHNICAL CONFERENCE OF THE GEORGIA ASSOCIATION OF FLOODPLAIN MANAGEMENT, Decatur, Georgia. See <http://www.gafoods.org/>.
- March 12–13, 2008:** ANNUAL CONFERENCE OF THE ILLINOIS ASSOCIATION FOR FLOODPLAIN AND STORMWATER MANAGEMENT, Tinley Park, Illinois. See <http://www.illinoisfloods.org/>.
- March 12–14, 2008:** ANNUAL CONFERENCE OF THE SOUTH CAROLINA ASSOCIATION FOR HAZARD MITIGATION, Myrtle Beach, South Carolina. See <http://www.scahm.kk5.org/>.
- March 18–21, 2008:** ANNUAL CONFERENCE OF THE MICHIGAN STORMWATER-FLOODPLAIN ASSOCIATION, Grand Rapids, Michigan. See <http://mi.floods.org/>.
- March 31—April 2, 2008:** URBAN WATER MANAGEMENT, Louisville, Kentucky. Sponsored by PennWell, WaterWorld, and others. See <http://www.urbanwatermgt.com>.
- April 7–9, 2008:** ANNUAL CONFERENCE OF THE MISSOURI FLOODPLAIN AND STORMWATER MANAGERS ASSOCIATION, Osage Beach, Missouri. See <http://www.mfsma.com/>.
- April 7–11, 2008:** ANNUAL CONFERENCE OF THE KENTUCKY ASSOCIATION OF MITIGATION MANAGERS, General Butler State Park, Kentucky. See <http://www.kymitigation.org/>.
- April 13–16, 2008:** SOLUTIONS TO COASTAL DISASTERS, Oahu, Hawaii. Sponsored by the Coasts, Oceans, Ports, and Rivers Institute, American Society of Civil Engineers. See <http://content.asce.org/conferences/cd2008/>.
- April 17–18, 2008:** SPRING WORKSHOP OF THE ARKANSAS FLOODPLAIN MANAGEMENT ASSOCIATION, Jacksonville, Arkansas. Contact Conrad Battreal at (501) 225-7779 or see <http://www.arkansasfloods.org/afma/>.
- April 27–30, 2008:** ANNUAL CONFERENCE OF THE NORTH CAROLINA ASSOCIATION OF FLOODPLAIN MANAGERS, Wrightsville Beach, North Carolina. See <http://www.ncafpm.org/>.
- April 27—May 1, 2008:** SPRING CONFERENCE OF THE TEXAS FLOODPLAIN MANAGEMENT ASSOCIATION, League City, Texas. See <http://www.tfma.org/displayconvention.cfm>.
- April 29—May 3, 2008:** FIFTH ANNUAL MEETING OF THE FLORIDA FLOODPLAIN MANAGERS ASSOCIATION, Tampa, Florida. See <http://www.ffma.net/>.
- April 30—May 2, 2008:** BUILDING RESILIENCE: ACHIEVING EFFECTIVE POST-DISASTER RECONSTRUCTION: FOURTH INTERNATIONAL CONFERENCE, Christchurch, New Zealand. Sponsored by i-Rec (International Group for Information on Post-Disaster Reconstruction). See <http://www.resorgs.org.nz/irec2008/>.
- May 14–16, 2008:** FOURTH INTERNATIONAL SYMPOSIUM ON FLOOD DEFENSE, Toronto, Ontario, Canada. Sponsored by the Institute for Catastrophic Loss Reduction and many others. See <http://www.flood2008.org/flood/>.

- May 18–23, 2008:** A LIVING RIVER APPROACH TO FLOODPLAIN MANAGEMENT: 31ST ANNUAL CONFERENCE OF THE ASSOCIATION OF STATE FLOODPLAIN MANAGERS, Reno, Nevada. See <http://www.floods.org>.
- May 19–21, 2008:** PROGRESS THROUGH PARTNERSHIPS: COLLABORATING TO PROTECT OUR WATERSHEDS, Mystic, Connecticut. Sponsored by the New England Interstate Water Pollution Control Commission and partners. Abstracts are due November 30, 2007. See <http://www.neiwpcc.org/npsconference/>.
- June 16–18, 2008:** ADVANCED FLOODPLAIN MANAGEMENT CONCEPTS (E194), Emergency Management Institute, Emmitsburg, Maryland. Contact (800) 238-3358 or see <http://www.training.fema.gov/EMIweb/>.
- June 23–26, 2008:** MANAGING FLOODPLAIN DEVELOPMENT THROUGH THE NATIONAL FLOOD INSURANCE PROGRAM (E273), Emergency Management Institute, Emmitsburg, Maryland. Contact EMI at (800) 238-3358 or see <http://www.training.fema.gov/EMIweb/>.
- June 29–July 2, 2008:** COASTAL FOOTPRINTS: MINIMIZING HUMAN IMPACTS, MAXIMIZING STEWARDSHIP, Los Angeles, California. 21st Biennial International Conference of The Coastal Society. Abstracts are due October 23, 2007. See <http://www.thecosatalsociety.org/conference/tcs21/call.html>.
- July 7–10, 2008:** RESIDENTIAL COASTAL CONSTRUCTION (E386), Emergency Management Institute, Emmitsburg, Maryland. Contact EMI at (800) 238-3358 or see <http://www.training.fema.gov/EMIweb/>.
- July 7–10, 2008:** RETROFITTING FLOOD-PRONE RESIDENTIAL BUILDINGS (E279), Emergency Management Institute, Emmitsburg, Maryland. Contact (800) 238-3358 or see <http://www.training.fema.gov/EMIweb/>.
- August 11–14, 2008:** NATIONAL FLOOD INSURANCE PROGRAM COMMUNITY RATING SYSTEM (E278), Emergency Management Institute, Emmitsburg, Maryland. Contact (800) 238-3358 or see <http://www.training.fema.gov/EMIweb/>.
- August 18–21, 2008:** ADVANCED FLOODPLAIN MANAGEMENT CONCEPTS (E194), Emergency Management Institute, Emmitsburg, Maryland. Contact (800) 238-3358 or see <http://www.training.fema.gov/EMIweb/>.
- September 15–18, 2008:** WETLANDS AND GLOBAL CLIMATE CHANGE, Portland, Oregon. Sponsored by the Association of State Wetland Managers. Contact Laura Burchill at (207) 892-3399 or see <http://www.aswm.org>.
- September 15–18, 2008:** NATIONAL FLOOD INSURANCE PROGRAM COMMUNITY RATING SYSTEM (E278), Emergency Management Institute, Emmitsburg, Maryland. Contact (800) 238-3358 or see <http://www.training.fema.gov/EMIweb/>.
- June 7–12, 2009:** THIRTY-THIRD ANNUAL CONFERENCE OF THE ASSOCIATION OF STATE FLOODPLAIN MANAGERS, Orlando, Florida. Contact the ASFPM Executive Office at (608) 274-0123 or see <http://www.floods.org>.



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